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THE MECCA OF PISTOL AND REVOLVER SHOOTERS.

CLUB HOUSE AND SHOOTING PAVILION OF THE MASSACHUSETTS RIFLE ASSOCIATION,
WALNUT HILL, WOBURN, MASS.

MODERN AMERICAN

PISTOLS AND REVOLVERS.

AN ACCOUNT OF THE DEVELOPMENT OF PISTOLS AND REVOLVERS IN AMERICA; DESCRIPTION OF THE VARIETIES MANUFACTURED; MANNER OF SHOOTING THEM; WORK ACCOMPLISHED WITH THESE ARMS; DEPARTMENTS OF PISTOL AND REVOLVER SHOOTING; IMPRESSIONS FORMED BY STUDYING THESE ARMS; AND RULES GOVERNING PISTOL AND REVOLVER COMPETITIONS.

BY

A. C. GOULD ("RALPH GREENWOOD.")

Illustrated.

NEW REVISED EDITION.

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PREFACE.

THE first edition of "Modern American Pistols and Revolvers" was published in 1888. At that time there was but little general knowledge of the capabilities of the pistol or the revolver. A general impression prevailed that there was little or no accuracy in the arms, or if they were accurate, those manipulating them skillfully were specially gifted. The publication of the first edition showed the great accuracy and reliability of certain arms, and made it apparent that to become skillful in manipulating them was only a matter of practice. This stimulated many devotees of shooting to attempt to acquire a proficiency. As a result, at the time of writing there are expert pistol and revolver shots in various sections of the country; and as the shooting world has no national confines, this statement may be applied to many parts of the world.

The expert amateur pistol and revolver shots of to-day are, in many instances, doing work superior to that of professionals a few years ago. To some extent, this is due to improvements in arms and ammunition, but chiefly to the knowledge that the arms possess great accuracy, are safe to shoot, and that it is within the reach of any

one with normal health and vision to become a fine marksman.

Pistol and revolver shooting has grown rapidly in popularity as a sport throughout the world; where there was one expert pistol shot a few years ago, there are now many. There have been numerous styles of arms created and modes of shooting developed, and it has seemed to be important that a record of the work accomplished since 1888 be collected, added to that before presented, and recorded in a permanent form. It is thought that the matter published in this volume will show the capabilities of pistols and revolvers, and the development of skill in shooting them.

The objects of the author in presenting this second edition are as follows: To demonstrate the accuracy of modern American pistols, revolvers, and ammunition to date; to record the best known work to the time of publication; to point out the propriety of classifying the several departments in shooting with these arms; to urge practical training among the national guard in America, where revolver shooting, which should be understood by all officers, members of the naval battalions, cavalry and artillery, has, until recently, been almost wholly neglected.

A. C. G.

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MODERN AMERICAN PISTOLS AND REVOLVERS.

CHAPTER I.

DEVELOPMENT OF AMERICAN PISTOLS AND REVOLVERS.

A PISTOL is a rifle of such size and shape that it can be aimed and fired with one hand. A revolver is a pistol with revolving barrels or a revolving cylinder. In modern revolvers the cylinder only revolves, this cylinder being supplied with chambers for cartridges. The term pistol is applied indiscriminately by many to both single-shot pistols and revolvers; but since the shooting of these arms has become popular, and the skill in shooting them has developed to such a high degree, there is a recognized difference in the arms, and in the skill in manipulating them; therefore, to distinguish between them, they are specified respectively as the single-shot pistol and the revolver.

The first supply of single-shot pistols found in the United States were of foreign manufacture, being almost wholly of the dueling pattern. Next came the manufacture of home products, which for many years was confined to hand work. These weapons were, necessarily, quite expensive; for besides the time and labor required to make them, they were often richly embellished, adding to their expense. A pair of ancient dueling pistols,

either of foreign or domestic manufacture, generally shows their manufacture called for high mechanical skill with artistic conception.

Besides the single-shot pistols of the duelling pattern were those of plainer finish for military work. These pistols were of large caliber, generally shooting a spherical bullet; sometimes a bullet and several shot were employed. These pistols were often of smooth bore. Next came the manufacture of military rifled pistols by machinery, and later, with the advent of the metallic cartridge, the production of the cheap, single-shot breech-loading pistol of small caliber.

The introduction of the revolver, which had such an apparent advantage over the single-shot pistol on account of its reserve shots, almost drove the pistol into disuse. It also had the effect of lessening practicing with the pistol, which in the early days of this country was considered a gentleman's accomplishment. Fine shooting became a lost art, and the old-time pistol shot sank into oblivion. Speed in manipulating a revolver was apparently considered of more importance than extreme accuracy.

The first American revolvers were crude arms; their chief merits being the reserve fire and ability to fire rapidly. Improvements in the arm to increase its accuracy were slow. The change from percussion to rim-fire cartridges retarded improvement in accuracy; from rim-fire to central-fire cartridges had the same effect; and it can be safely said that American breech-loading pistols and revolvers were not brought to a high state of perfection until within a few years; and the American revolvers were far inferior, in point of accuracy, to the old muzzle-loading rifled pistol until within a short time.

In the year 1885 the writer commenced the publication

of *The Rifle*, a monthly journal devoted to rifle shooting in all its branches. At that time I think it was generally believed by the shooting fraternity that, with one exception, a pistol was the most difficult of firearms to shoot well. The revolver, it was thought, was not only the most difficult of all firearms to shoot accurately, but it was supposed the arm was incapable of doing accurate work. Such statements appeared repeatedly in sportsmen's publications.

After considering the subject for some time, the writer determined to devote his attention to learning as much as he could of the possibilities of modern American pistols and revolvers, giving several years to the study of those arms, and writing on the subject until he had the pleasure of seeing American pistols, revolvers, ammunition, and the skill of those using the same, developed to a point far beyond what it was considered possible.

I have alluded to the revolver supplanting the single-shot pistol for a time. This was chiefly because the revolver was considered a better weapon of defense. As target practice with the pistol increased in popularity, the advantages of each arm were considered to an infinitesimal degree. As a result of this investigation, it became apparent that the single-shot pistol was an arm to be preferred for target work. For a long time it was difficult to determine the difference in accuracy between the two arms. I have summarized the opinions of expert pistol shots, and the result shows that to-day a majority believe that in firing 100 shots at fifty yards on the Standard American target, the pistol is capable of making from fifteen to twenty points more than the revolver. Besides the single-shot pistol being considered more accurate, it can be shot 100 shots or more without cleaning, while the revolver must be cleaned often to maintain its ac-

curacy; and the ammunition for the single-shot pistol is much cheaper than that used in revolvers.

These are facts which have been demonstrated, and consequently the manufacture of single-shot pistols has been revived in America. The target pistol is now made in greater numbers than ever before; and while the revolver still holds its popularity, and is owned and shot by most pistol experts, yet the single-shot pistol is more generally used in target and match shooting.

CHAPTER II.

AMERICAN SINGLE-SHOT PISTOLS.

THERE are four well-known makers of single-shot pistols in America: the J. Stevens Arms & Tool Co., of Chicopee Falls, Mass.; Smith & Wesson, of Springfield, Mass.; William Wurfflein, of Philadelphia, Penn.; and The Remington Arms Co., of Ilion, N. Y. Frank Wesson, of Worcester, Mass., was at one time a well-known maker of single-shot pistols, but he is now out of the business, although his pistols are on the market and in use by marksmen to-day. Besides the manufacturers mentioned, there are a few gunmakers who sometimes make pistols to order, but they rarely make such arms except to accommodate some particular customer desiring a special pistol.

Single-shot pistols are made in calibers from .22 to .50. Most of them are made in .22 caliber; the Stevens, the Wurfflein, and the Smith & Wesson being chambered and rifled for the celebrated long-rifle cartridge in the .22 caliber, which is extremely accurate at all ranges at which pistols are shot. This celebrated cartridge was originated by the J. Stevens Arms & Tool Co., and first manufactured by the Union Metallic Cartridge Co., at Bridgeport, Conn., in the spring of 1886. The .25 caliber rim-fire cartridge also enjoys a popularity; but owing to the expense of that ammunition, and its liability to misfire, it is not so popular as when first introduced. The .22–7–45 inside lubricated rim-fire cartridge, introduced by the Winchester Repeating Arms Co. in 1890, is rapidly becoming popular, especially with those who carry a pistol for small game shooting.

Most of the single-shot pistols of American make which are exported, are made in larger calibers, and for central-fire cartridges; the .32 caliber being a popular size, as the central-fire cartridges in this caliber can be found more readily abroad than most American cartridges. The .44 caliber is also a favorite, the latter being chosen by some in order that they may have one cartridge for both pistol and revolver.

I know of no club in the United States that places a limit on the weight of a pistol. This is obviously unnecessary, as it would be difficult to hold at arms-length a pistol beyond a certain weight. Most of the single-shot pistols used for target shooting have barrels ten inches in length. Before rules governing pistol shooting were perfected, there were a number of experts that secured pistols with twelve-inch barrels; but most rules, at the time of writing, forbid barrels of over ten inches. The length of barrels of revolvers is usually not over six inches, so it will be seen that the pistol has a decided advantage over the revolver.

The famous Stevens single-shot pistols are manufactured by the J. Stevens Arms & Tool Co., at Chicopee Falls, Mass., and several models are made for different purposes. The largest and heaviest is known as the Lord model. This arm is generally made in .22 caliber with a ten-inch barrel, and weighs in this caliber three pounds. As the size of the caliber is increased, the weight of the arm is slightly lessened. It has a larger frame and a much longer handle than the other models, as the person who suggested the model, Mr. Frank Lord, at one time a celebrated pistol shot of New York City, had a herculean frame, and preferred a pistol with a very long handle. This pistol was formerly rifled and chambered for the .22 caliber short cartridge, but at the present time is, as

is the case with all the other .22 caliber pistols manufactured by this company, made for the long-rifle cartridge; barrels for this cartridge, also for the .22–7–45 Winchester inside lubricated cartridge requiring a quicker twist than in the pistols for the .22 short. The change of

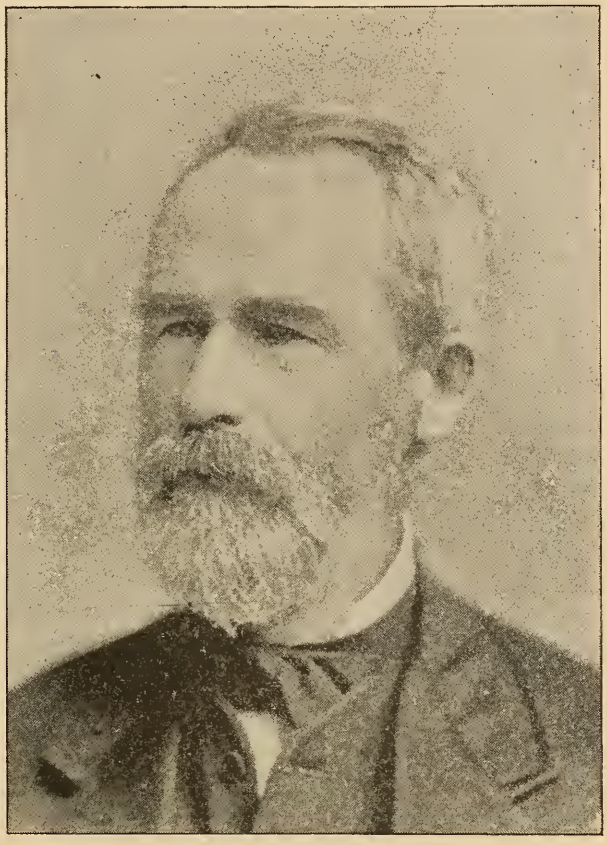

Fig. 1. — Mr. J. Stevens, inventor of The Stevens Pistol.

the twist is a decided advantage, for it enables one to use either the long-rifle cartridge, the short cartridge, or even the conical breech caps if desired; while with the pistols rifled for the .22 short, that cartridge and the conical breech caps alone can be used. The Lord Model Stevens pistols can be bored and rifled for almost all of the Amer-

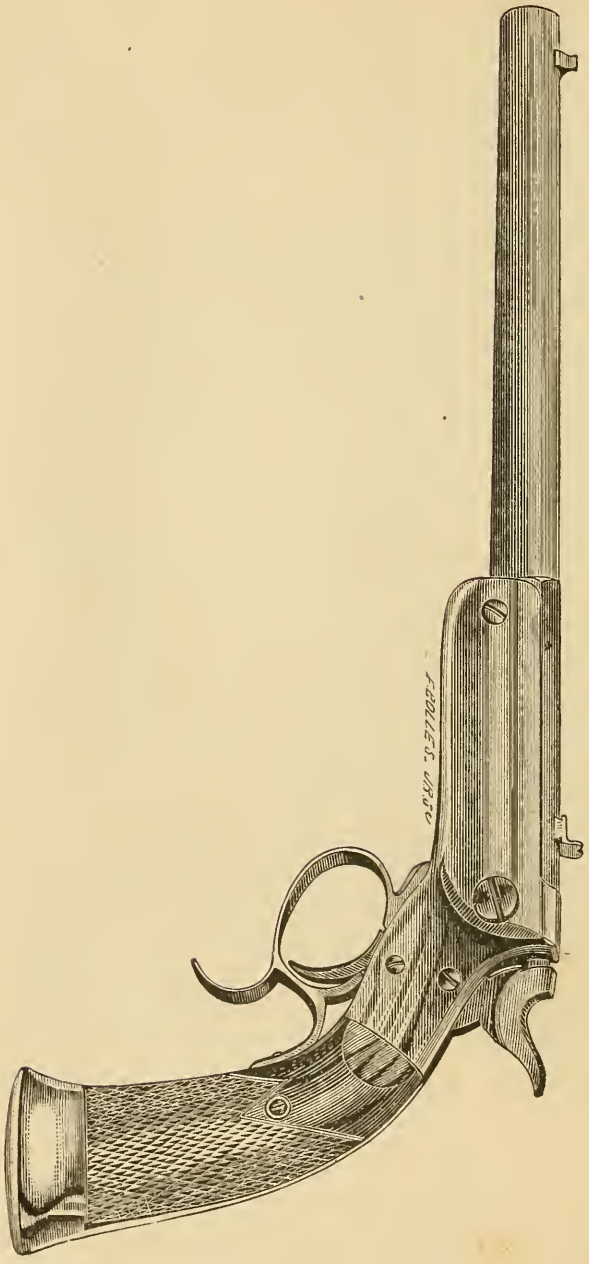

Fig. 2.—The Lord Model Stevens Pistol.

ican pistol cartridges, but few are made for larger than .25 caliber. The late Ira Paine preferred the Lord model

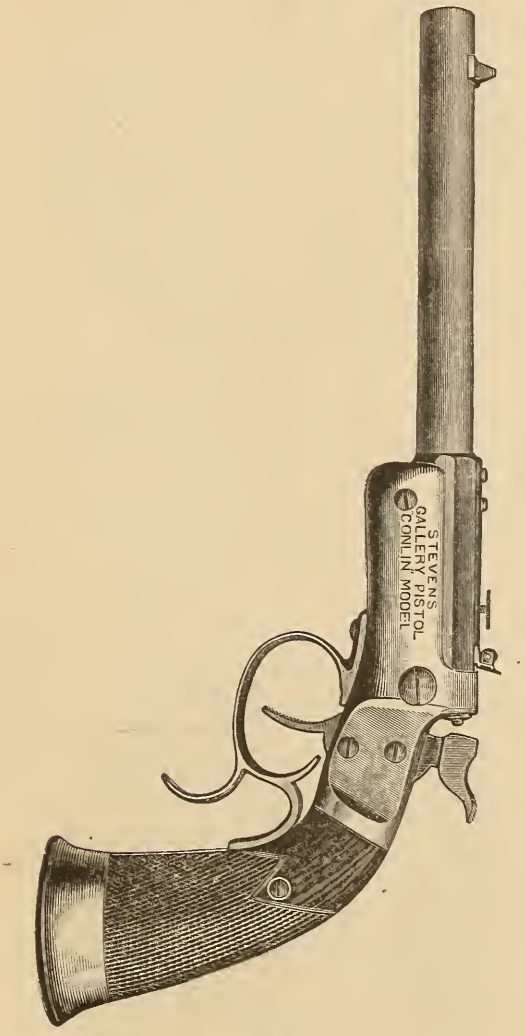

Fig. 3.—The Conlin Model Stevens Pistol.

pistol, and used it in his exhibitions up to the time of his death.

The next model is known as the Conlin model. It usually has a ten-inch barrel, is .22 caliber, and weighs $2\frac{1}{8}$ pounds. This model was named for Mr. James S.

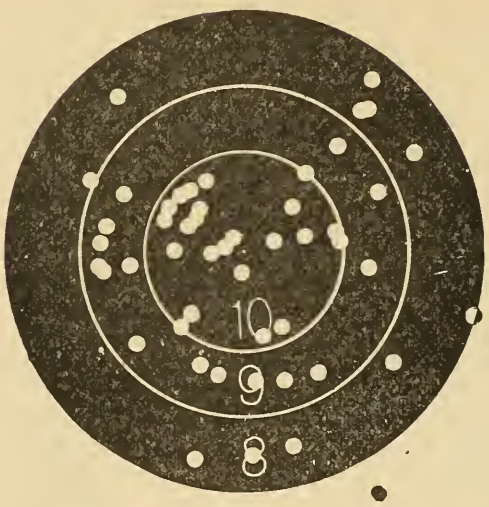

Fig. 4. — Fifty consecutive shots with a Stevens pistol by Lieut. Sumner Paine. Shot at Walnut Hill at fifty yards, Feb. 22, 1892. Score 461. Reduced one-quarter.

Fig. 5. — Fifty consecutive shots at 50 yards by Mr. H. S. Harris. Shot in a match at Walnut Hill, Feb. 20, 1892, with a Stevens pistol. Score 455, off-hand count. Target reduced from 8-inch bull's eye.

Conlin, the well-known proprietor of Conlin's shooting gallery in New York City. The model formerly had the side-covered trigger, which was never liked by the writer. When deeply interested in pistol shooting, I tried the different pistols manufactured by the J. Stevens Arms & Tool Co. I found the Lord model too heavy for me to

Fig. 6. — Fifty consecutive shots at 50 yards, shot in a match at Walnut Hill, Feb. 22, 1892, with a Stevens pistol, by Mr. E. E. Patridge. Score 453.

hold steadily, the Conlin model was objected to on account of the side-covered trigger; therefore I attempted to alter a pistol to better suit me. I procured a Conlin model frame. Cutting off the side trigger guard, I attached the trigger guard of a Lord model pistol; and when I had altered the arm to better suit me, I forwarded the same to the J. Stevens Arms & Tool Co. This company immediately made a pistol somewhat like it, which was sent for my inspection. The trigger guard to the new pistol had

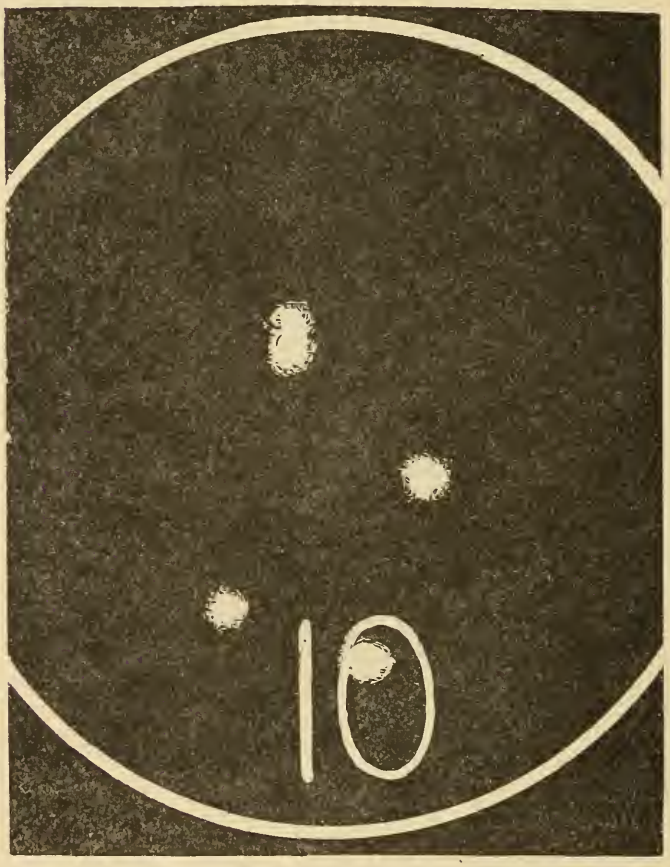

Fig. 7. — Copy of five consecutive shots by Mr. J. B. Fellows. Score fifty, out of a possible fifty on Standard American target; distance fifty yards. Shot with a .22 caliber Stevens pistol and long rifle cartridge of U. M. C. Co., made at the Fall Meeting of the Massachusetts Rifle Association 1888. The highest score made during the meeting. Target full size.

a spur on it, to which I objected, and the guard was altogether too small to suit me. The J. Stevens Arms & Tool Co. asked permission to call the pistol the Gould model,

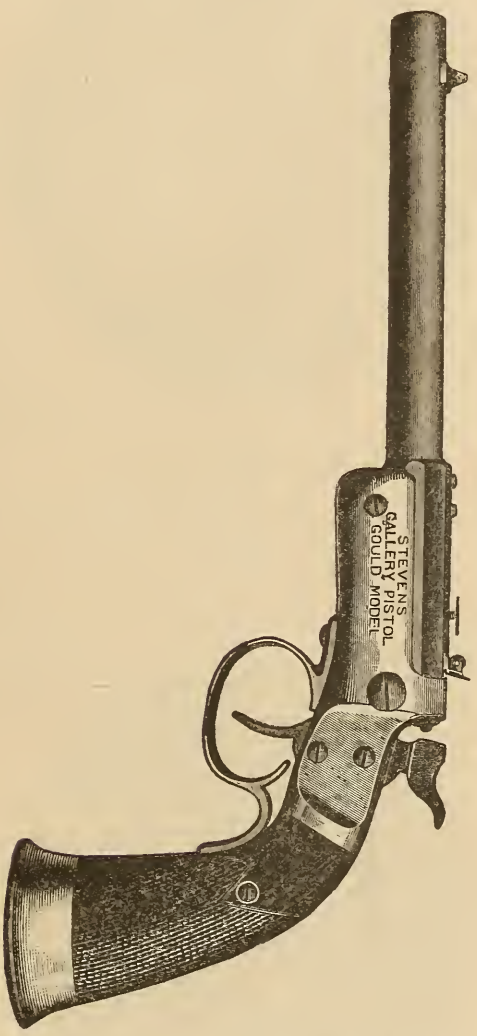

Fig. 8. — The Gould Model Stevens Pistol.

to which I objected, as it was not like the one I thought I had improved. The trigger guard, with and without the spur, was so much of an improvement over the side-covered trigger, however, that the manufacturers abandoned

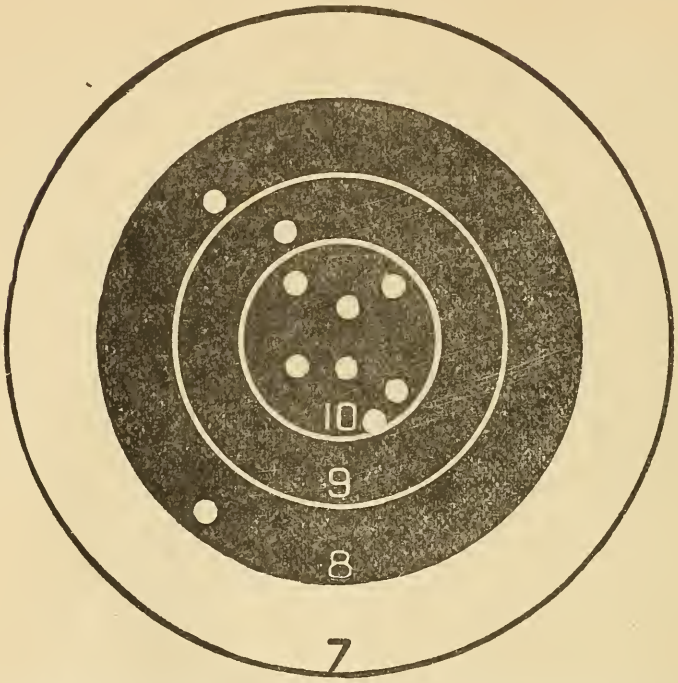

Fig. 9. — Ten shots at fifty yards, with a Smith & Wesson single-shot pistol, eight-inch barrel chambered and rifled for the Winchester 22-7-45 cartridge. Shot by Major C. W. Hinman.

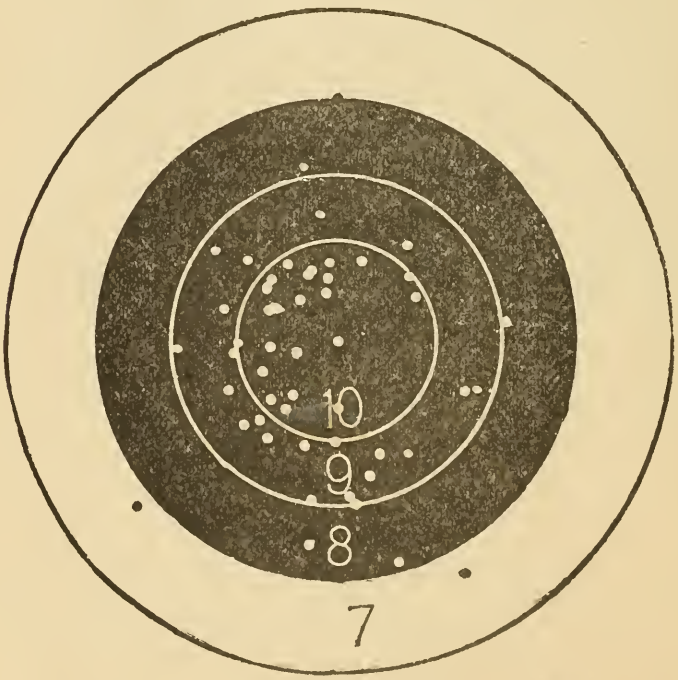

Fig. 10. — Fifty consecutive shots, at fifty yards, shot by Mr. J. B. Fellows, at Walnut Hill, Mass., with a Stevens .22 caliber pistol and U. M. C. Co.'s ammunition. Score, 456 points, shot on fifty yards pistol target.

making the original Conlin model, and called the one without the spur the Gould model, and with the spur the Conlin model.

Another model produced by this company is called the Diamond model. It is much smaller in size, and is made

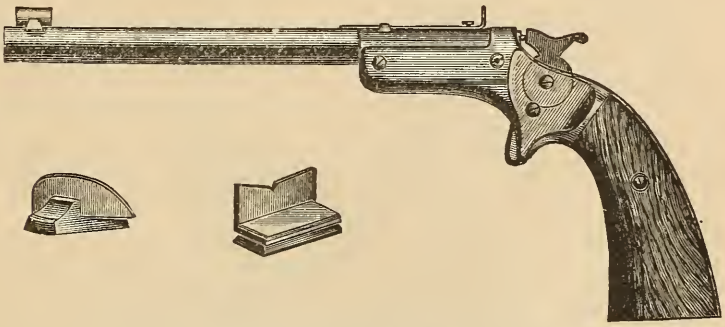

Fig. 11. — The Diamond Model Stevens Pistol.

with either a ten-inch or a six-inch barrel. The weight of the former is ten ounces, and with the latter twelve ounces. Some two years previous to the time of writing, I carried a six-inch barrel Diamond model to Walnut Hill, and was

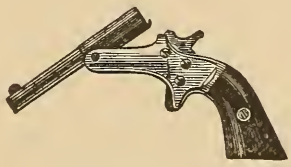

Fig. 12. — Stevens Pistol, with 3½ inch barrel.

laughed at heartily for my temerity; but I had confidence that the arm would shoot accurately. Although I found some difficulty at first in shooting it well, the raillery of my friends influenced me to practice with it until I had demonstrated the arm to be accurate. Several of the marksmen at that famous resort then adopted the arm, a number altering it slightly. Some added a ten-inch

barrel and restocked the pistol, which makes a very light and extremely accurate pistol when fired with proper

Fig. 13. — Mr. J. B. Fellows, Boston, Amateur Pistol Shot.

sights; but so light an arm must be handled with delicacy. To those interested in pistol practice who have moderate muscular strength in the arms, the lightness of this model commends itself.

There are two other models made by the above company, which have barrels three and 3½ inches in length, and consequently they do not shoot with anything like the accuracy of the other models. They are intended chiefly for pocket pistols, representing a minimum of compactness with accuracy.

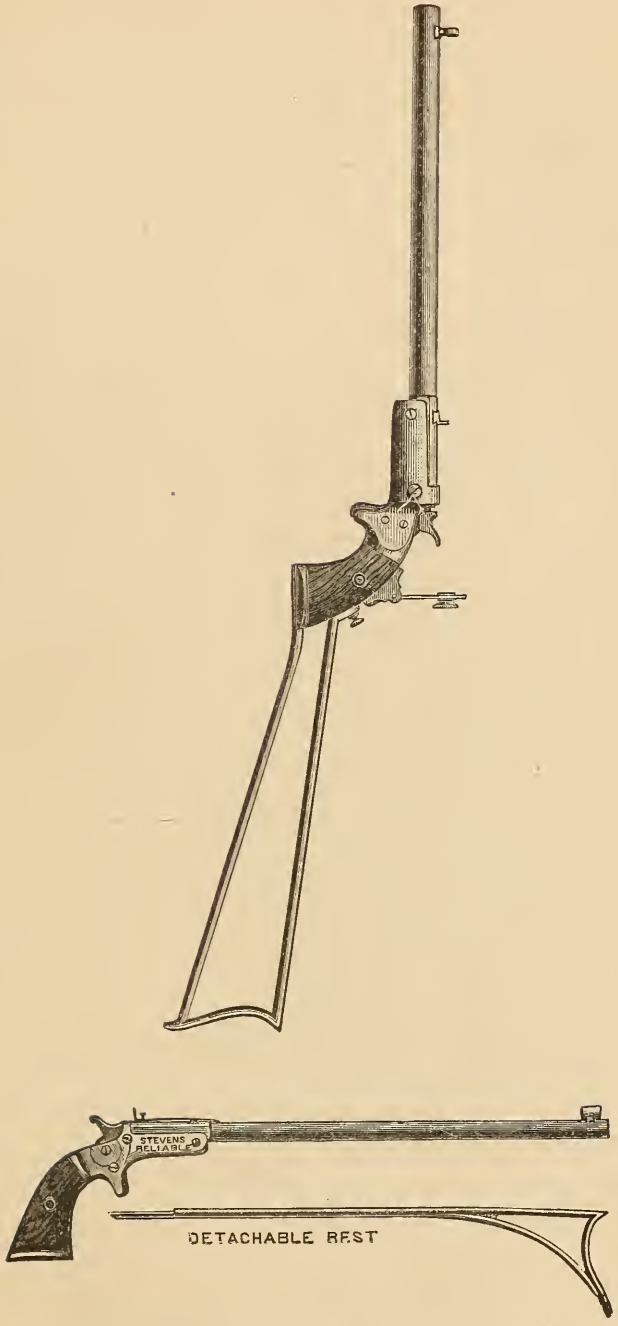

Fig. 14. — Stevens Pistols with Skeleton Stocks.

The Stevens pistols have made some of the most wonderful scores known. The barrels, upon which so much depends, seem to be perfect, and probably at the present time there are more Stevens pistols in the hands of famous marksmen throughout the world than of any other make.

The sights attached to the Stevens target pistols are

Fig. 15. — Sights for Stevens Target Pistols.

generally a bead front sight and a rear wind gauge sight, the latter being operated by a screw. To operate these pistols, half-cock the arm, press the stud on the side which releases the barrel, which tips down, thus exposing the chamber in which the cartridge is placed. The action is then closed, hammer cocked, and the arm discharged.

The Smith & Wesson single-shot pistols have only recently been perfected, and after long and careful consideration characteristic of the firm producing them. It is safe to say there is no finer made pistol in the world than this latest American product. It is compact, symmetrical, made and finished with the highest mechanical skill. The first single-shot pistol produced by this firm was of .38 caliber; a .32 caliber soon followed, both of these calibers taking the central-fire cartridge. The barrels were six inches in length, but American pistol shooters at once called for the .22 caliber and a ten-inch barrel for the long-rifle cartridge. This call was responded to, and the ten-inch single-shot Smith & Wesson pistol has

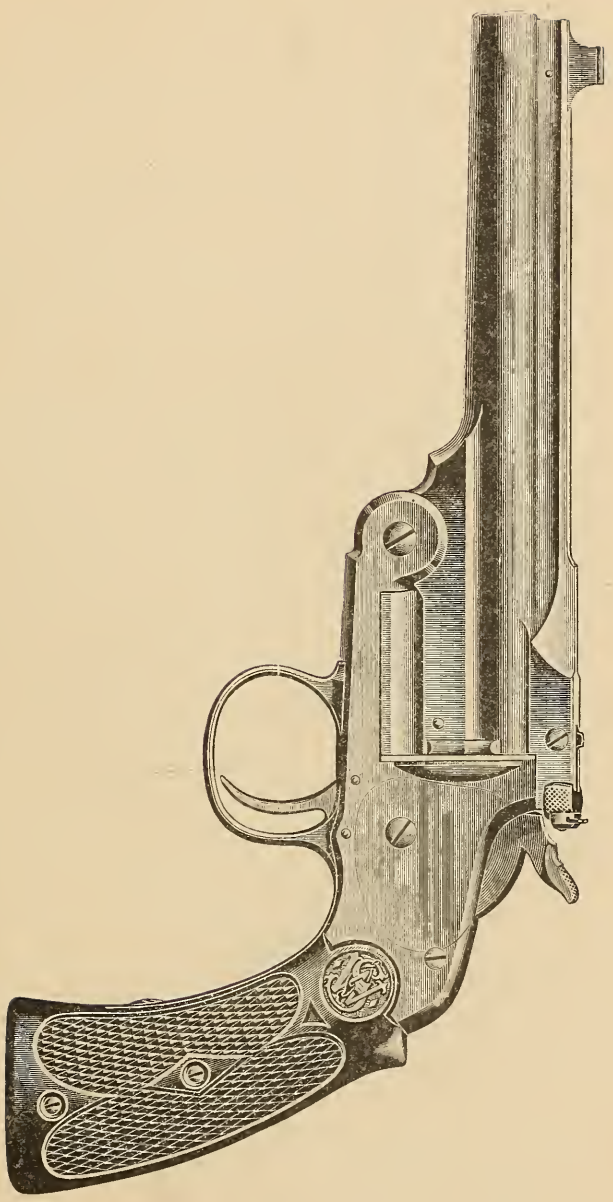

Fig. 16. — The New Smith & Wesson Single-Shot Pistol.

already sprung into popularity, and shown to be unsurpassed for accuracy and reliability.

These pistols have barrels from six to ten inches in length, and are made in calibers from .22 to .38 inclusive, chambered and rifled for the best American pistol cartridges.

The action is the same as the .38 caliber single-action Model 1891 revolver; in fact, it is the .38 caliber single-action frame, hammer, trigger, trigger guard and lock-work. Into this frame is fitted a single-shot barrel. The barrel is fitted with a fine open bead front sight, and, although very delicate in appearance, is sufficiently strong to prevent being bent in any ordinary use. Other styles of front sights can be used if preferred. A lateral sliding bar wind gauge, similar to the one on the .44 Russian model target revolver, is attached to the barrel clutch. I have stated that the arm had the frame of the .38 caliber revolver. That frame has a stock beautifully modeled, and just right for a revolver with $3\frac{1}{4}$ or four inch barrel, and a cylinder; for compactness and symmetry is considered in making an arm to be carried in the pocket. But a pistol with a barrel six inches long or even longer, which is intended for target work, might be improved, according to the ideas of pistol experts, by lengthening the handle, and the manufacturers have accomplished this by supplying a new rubber stock, which fits so perfectly over the stock frame as to make a longer and thicker handle, giving ample opportunity for a person with a large hand to grasp the handle perfectly. With this radical change perfect symmetry and balance have been preserved.

The arm is operated by lifting the barrel clutch, and tipping the barrel muzzle downwards, this operation acting on the ejector automatically, ejecting the shell of an exploded cartridge.

Fig. 17. — The Wurfflein Single-Shot Pistol.

The Wurfflein pistols, made by Mr. William Wurfflein, of Philadelphia, are very meritorious arms, thoroughly made of the best material and very accurate. Mr. Wurfflein does not manufacture pistols in any such quantities as the other manufacturers, making the most of his

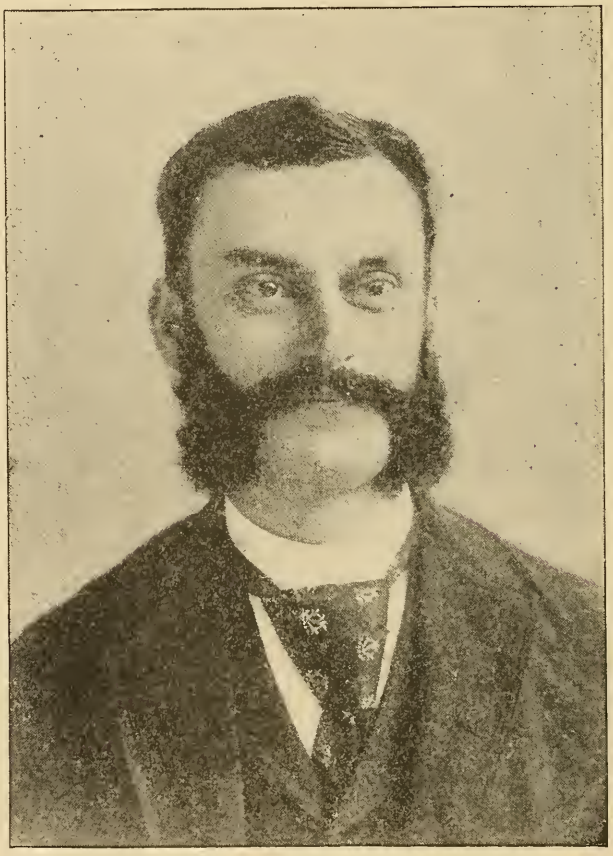

Fig. 18. — Mr. William Wurfflein, Inventor and Manufacturer of the Wurfflein Pistol.

arms to order. The majority of his pistols are with ten-inch barrels, and are .22 caliber for the long-rifle cartridge ; though he will make them for any pistol cartridge, for either central or rim-fire cartridges, or both, and with barrels to interchange in one stock, and with long or short

barrels. His pistols weigh from $2\frac{3}{4}$ to $3\frac{1}{2}$ pounds. The arm is more like the old style dueling pistol in appear-

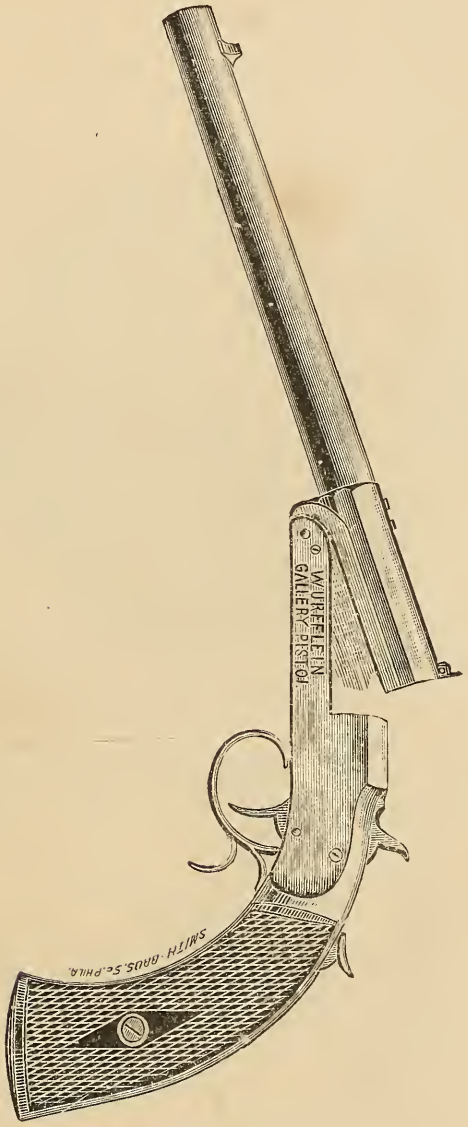

Fig. 19. — The Wurfflein Single-Shot Pistol. Open.

ance than any other American pistol now manufactured. It is operated as follows: —

The projecting piece back of the hammer is pressed,

which releases the barrel, which has a tip-up action, enabling the shooter to readily insert a cartridge or withdraw an exploded case.

Mr. Wurfflein makes pistols to order with special shaped stocks or other points desired by customers.

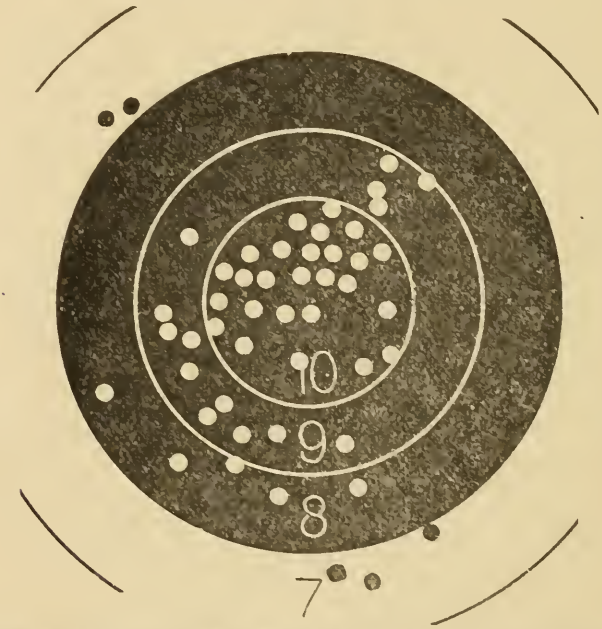

Fig. 20. — Fifty consecutive shots, at fifty yards, by Mr. Sumner Paine, at Walnut Hill, June 4, 1892, made with Wurfflein .22 caliber pistol. Score, 462, which at time of shooting, tied the best amateur record for fifty shots with pistol. Target reduced to ¼ original size.

The Remington single-shot pistols are much less elegant pieces of workmanship than the Stevens, the Wurfflein, or the Smith & Wesson; but there are excellent points about these arms which will be apparent to the inspector as he examines them. They possess great strength and wearing qualities, are accurate; and although not particularly symmetrical, they are well balanced, and have such excellent handles that, when grasped, there is a feeling of firmness and steadiness which is verified when the shooter attempts to sight it on a small object. The pistols are made in .22, .25, and .32 caliber; the .25 caliber

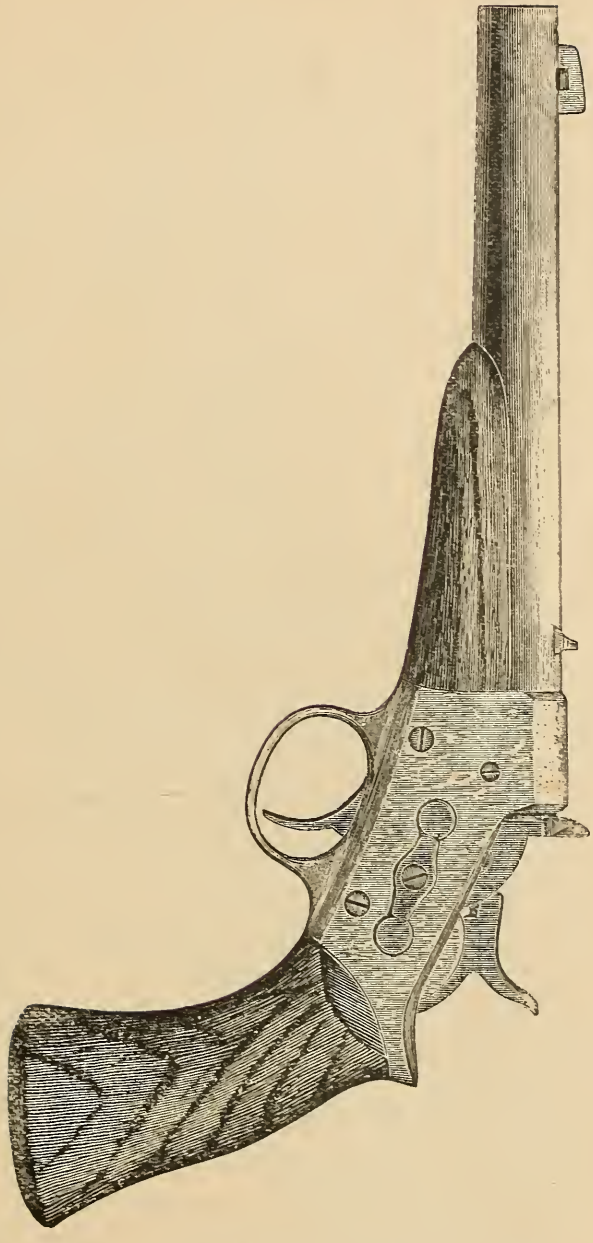

Fig. 21. — The Remington Single-Shot Pistol.

being adapted for the rim-fire cartridge, and the .32 caliber for the short or long rim-fire Smith & Wesson and the .32 Winchester central-fire cartridges. The pistol is also made in .50 caliber with full round barrel and for central-fire shell. They have barrels eight, ten, or twelve inches long.

The action is similar to the old model Remington rifle. The hammer is brought to a full cock, a breech block rolled back, which permits the barrel, which is screwed into a solid frame, being inspected from the rear, and is thus easily cleaned. All attempts to procure discharges from these arms with action improperly closed have been unsuccessful, and can see no reason why they are not as safe as they are accurate. Their unusual strength and weight make them desirable arms for long range pistol practice, as they will stand a much heavier charge, with comfort to the shooter, than would ever be required for shooting at any range.

The Wesson single-shot pistols were formerly manufactured by Frank Wesson, at Worcester, Mass. They are operated as follows: The hammer is slightly raised and held by a pin pressed in from the side; a projecting stud is pressed at the bottom of the receiver, and the barrel turned over to one side,— the shell of the exploded cartridge thrown out by the extractor. The arms are well balanced, fitted with good sights of different styles, and are accurate, but not to be compared in accuracy at fifty yards with the more modern pistols with quicker twist, and shooting improved ammunition.

The Colt's Patent Fire-Arms Manufacturing Co., of Hartford, Conn., formerly made three styles of single-shot Deringers. Two of these arms are no longer manufactured, though some are in use. To operate the old national Deringer, set the hammer at half cock, grasp the stock

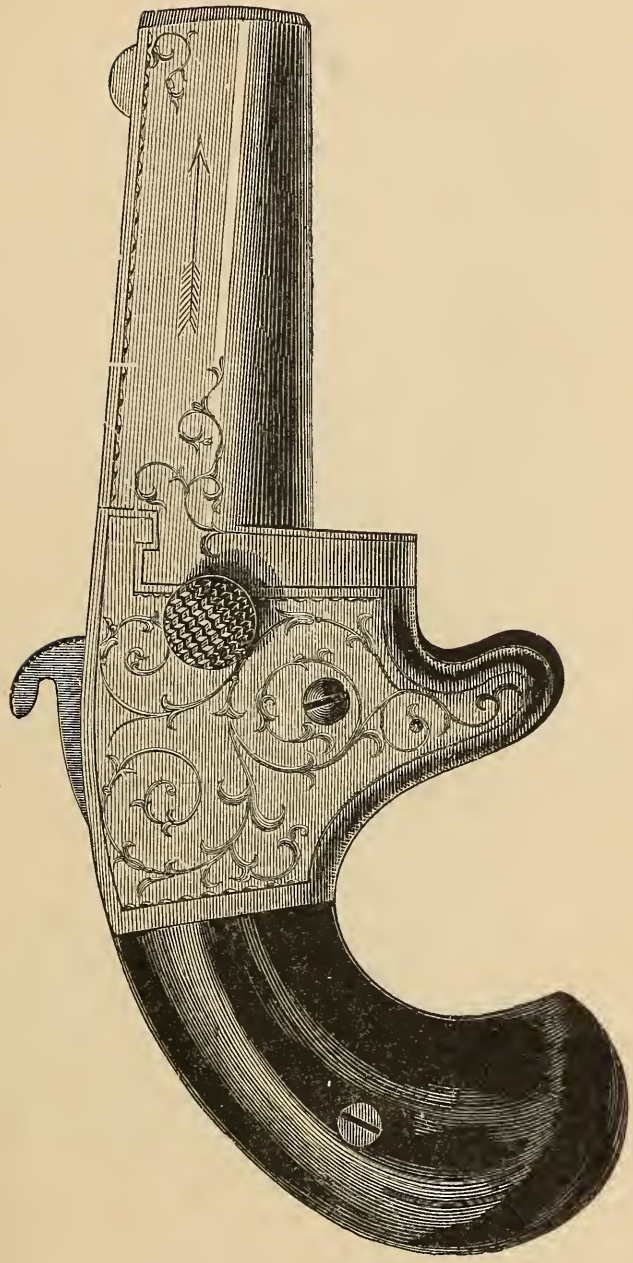

Fig. 22.— Colt National Deringer. Not now manufactured.

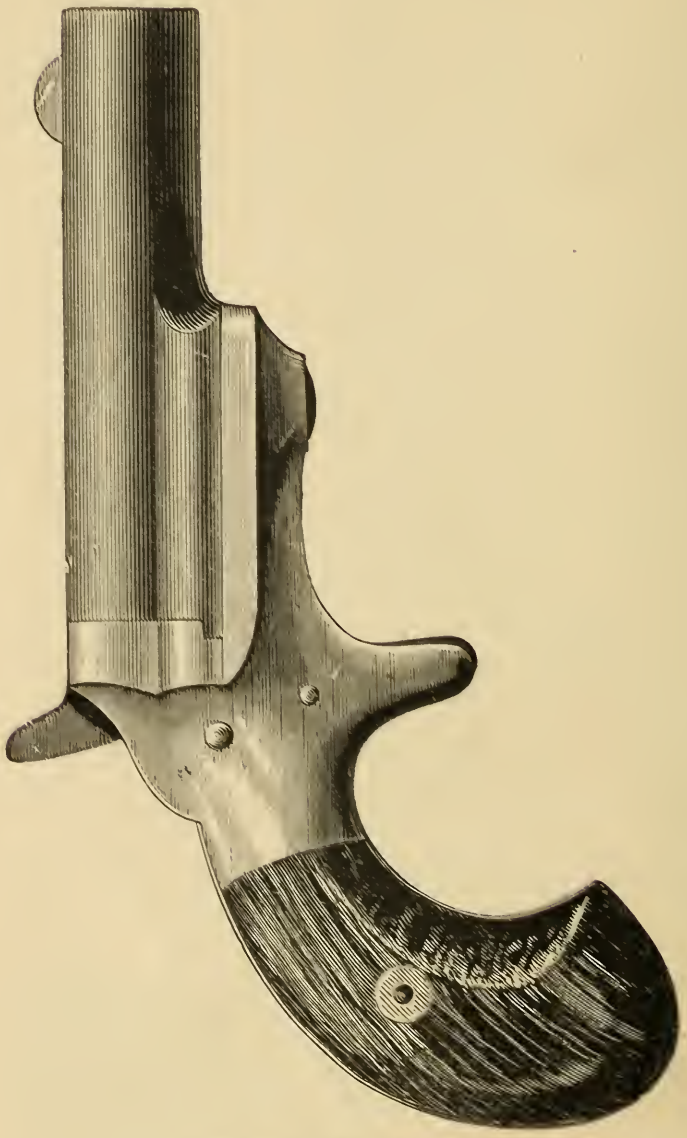

Fig. 23. — Colt Deringer.

in the right hand, and, drawing back the steel button with the forefinger, rotate the barrel toward you with

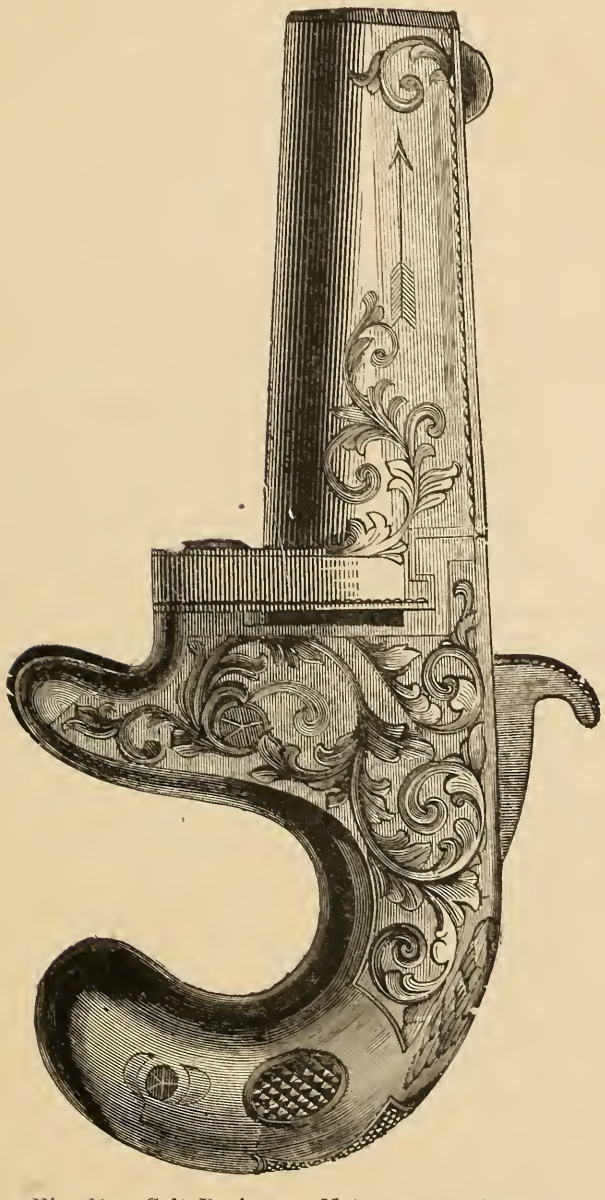

Fig. 24. — Colt Deringer. Not now manufactured.

the left hand. Holding the barrel thus turned aside, introduce the cartridge, and then rotate it to its original

position. After firing, the empty shell may be ejected by rotating the barrel as directed for loading.

In the Deringer now manufactured the barrel is held in place by a friction catch; pushing the barrel makes it revolve on a pivot and eject automatically.

The weight of the old Deringers are about ten ounces each; the one made now weighs $7\frac{1}{2}$ ounces. They are powerful pistols of large bore, intended for weapons of defense at short range.

CHAPTER III.

THE COLT REVOLVER.

THE armory of the Colt's Patent Fire-Arms Manufacturing Company is located at Hartford, Conn., where the famous Colt revolvers, so favorably known throughout the world are manufactured. Samuel Colt, the inventor of the Colt revolver, commenced devising the mechanism of this arm as early as 1830; and the result of his ingenuity and skill is the large plant at Hartford, where the Colt revolver has been produced in great quantities for half a century; the establishment consists of a number of buildings, having a total machine floor space of 7½ acres, while there are actually 11.6 miles of live belting. The styles of revolvers made by this company are as follows: —

Single-Action Army Revolver: length of pistol, 12 inches; length of barrel, 7½ inches; bore or caliber, .45 inch; weight, two pounds five ounces; rifling, six grooves, one revolution in sixteen inches; depth of groove, .005 inch; six shot.

CARTRIDGE.— Weight of powder, forty grains; weight of lead, 250 grains. Central-fire, external priming.

Army and Frontier Revolver: double-action; full length of pistol, 12½ inches; length of barrel, 4¾, 5½, and 7 inches; weight of pistol with 7½-inch barrel, two pounds seven ounces; caliber, .45 inch; six shot. Made with barrels of any length, and for the old U. S. regulation cartridge, or the .44 caliber magazine rifle cartridge. The revolver taking the latter cartridge is known as the Frontier model.

New Navy Revolver: double-action; caliber, .38 and .41; central-fire; length of pistol, 11¼ inches; weight, two pounds; length of barrel, three, 4½, and six inches.

New Model, .41: double-action; central-fire; caliber, .41; six shot; length of barrels, 4½, five, and six inches.

New Army Revolver: double-action; caliber, .38 and .41; central-fire; length of pistol, 11¼ inches; weight, two

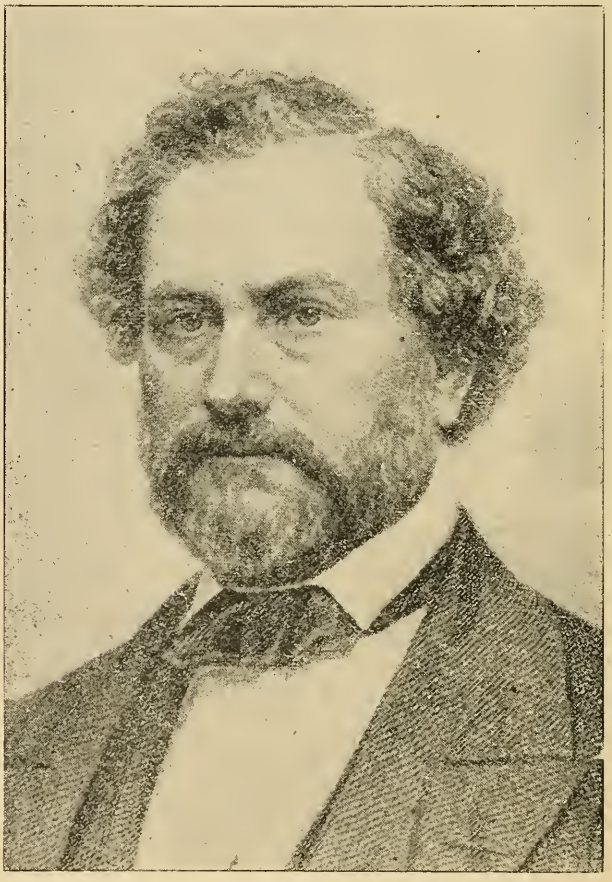

Fig. 25. — Col. Samuel Colt, Inventor of the Colt Revolver.

pounds; length of barrels, three, 4½, and six inches.

New Model, .38: double-action; central-fire; caliber, .38; six shot; length of barrels, 2½, 3½, 4½, five and six inches.

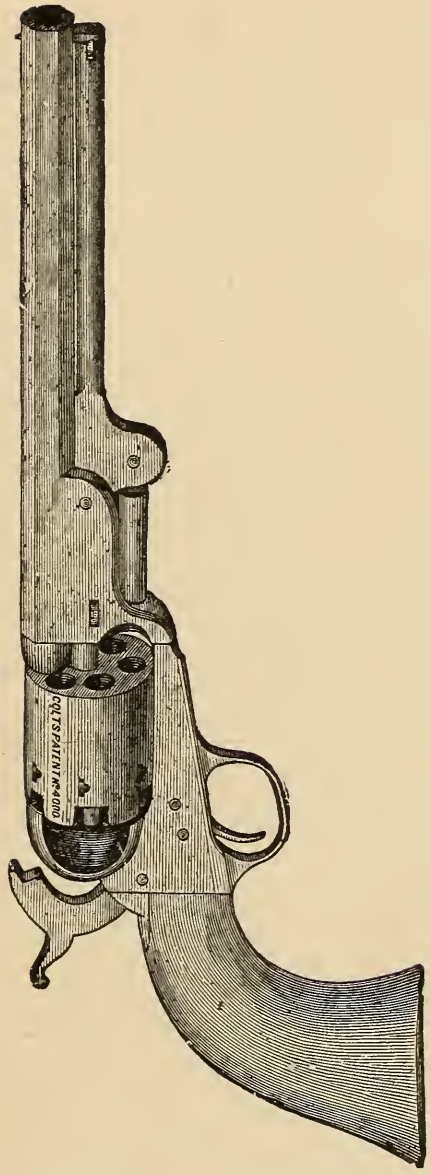

Fig. 26. — Original Colt Revolver.

New Target Revolver, in .32, .38, .44 and .45 caliber, made on single-action frame. This company also makes these revolvers for the Russian model .44 caliber cartridge, and for .436, .450, .455, and .476 Ely cartridges. These are made with long handles expressly for target work.

New Pocket Revolver (Army revolver design): .32 caliber; $2\frac{1}{2}$, $3\frac{1}{2}$ and six-inch barrels; weight, sixteen ounces.

The above models represent the various revolvers made at the Colt armory at the time of writing; but there will be found in use many Colt revolvers made up differently than those mentioned. There are thousands of the old model army and navy revolvers in existence to-day which load at the muzzle of the cylinder. In this model, as well as the .38 caliber, many have been altered to breech loaders, to shoot the central-fire cartridges, and are accurate and fine shooting arms. There are also in use old and new model Colt revolvers with various lengths of barrels and odd calibers, to suit the whims and fancies of individuals requiring a revolver for a particular kind of work: revolvers in single action of various calibers, without a trigger, and fired by drawing back the hammer with the thumb, and releasing it, as well as by pressing back the hammer with the left hand, and releasing it, with the object of discharging the arm more rapidly than it could by cocking; Army and Frontier models with very short barrels, for parties desiring the most powerful revolver made in the most compact form, suitable for short range only, and sacrificing accuracy. The army model Colt revolver has the following mechanism: —

The hand, or finger, or pawl, which revolves the cylinder has two points, one above the other. The upper engages the ratchet of the cylinder when the revolution begins. But before the necessary sixth of a revolution could be made, as the pawl moves in a plane, and the ratchet tooth

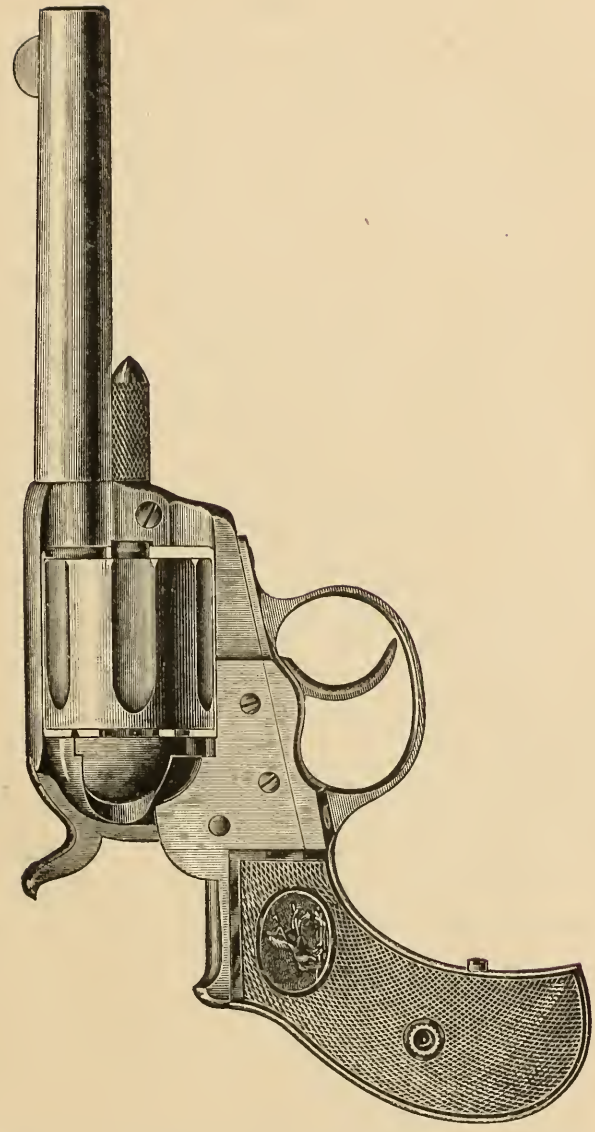

Fig. 27. — Colt Double-Action, .38 and .41 calibers. No. 1.

in the arc of a circle whose plane is perpendicular to the pawl's plane of motion, the pawl would lose its hold on the tooth, and the revolution of the cylinder would stop. To prevent this, the second point is added; and just as the first point will disengage from the ratchet, the second or lower point engages another tooth of the ratchet and completes the revolution. By this arrangement the pawl actuates a larger ratchet than it could otherwise, and therefore exerts more force upon the cylinder, by acting upon a longer lever arm. This permits a ratchet of greater diameter, insuring greater leverage, facilitating rotation.

The cylinder has a bushing, which projects in front of it, and gives three surfaces upon which the cylinder revolves, thus diminishing the chance of sticking from dirt or rust, and also giving a very small axis upon which to revolve, decreasing the moment of friction. This point, it is claimed, is especially advantageous in preventing the revolver from becoming inoperative when exposed to the elements.

When the ejector is used, it springs back to its place, and is ready for use again, avoiding the necessity of putting it back.

To take apart the Revolver. — Half cock the revolver, loosen the catch screw which holds the center pin, draw out the center pin, open the gate, and the cylinder can then be withdrawn.

To remove the ejector, turn out the ejector tube screw, then push the front end away from the barrel, and pull it toward the muzzle. The barrel can then be unscrewed.

The stock can be removed by turning out the two screws just behind the hammer, and that at the bottom of the strap. All the parts of the lock are then displayed, and can be readily separated.

The cylinder bushing should be pushed out for cleaning.

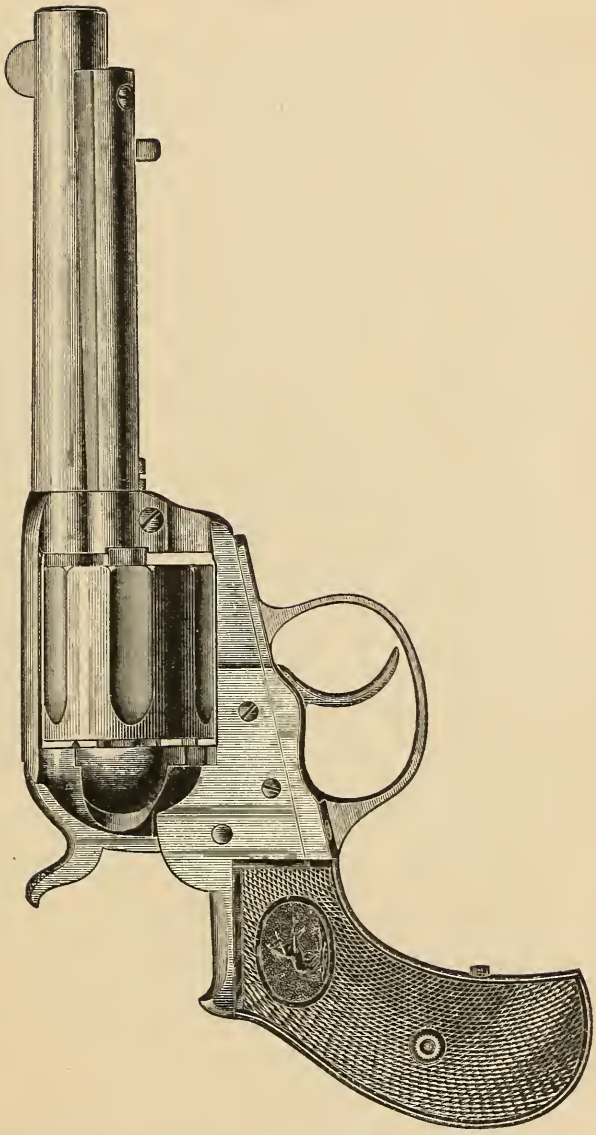

Fig. 28. — Colt Double-Action, 38 and .41 calibers.

To remove the gate, turn out a screw in the lower side of the frame, hidden by the trigger guard, then the gate spring and catch can be withdrawn, and the gate can be pushed out.

To load the arm. — First motion: Holding the revolver in the left hand, muzzle downward, half cock it with the right hand and open the gate. Second motion: Insert the cartridges in succession with the right hand, close the gate, cock and fire, taking it in the right hand, or bring the hammer to the safety notch, as may be desired.

To eject the cartridge shells. — First motion. Holding the arm in the left hand, half cock with the right hand and open the gate. Second motion. Eject the shells in succession with the ejector pushed by the right hand, moving the cylinder with the thumb and forefinger of the left hand. When the shells have been ejected, the revolver is ready for the second motion of loading.

There are three notches in the hammer of this arm. The first is the safety notch, the second is the half-cock notch, and the third is the cock notch. The pistol cannot be fired when the hammer rests in the safety notch or half-cock notch, and can be fired by pulling the trigger when the hammer rests in the cock notch. The manufacturers of the Colt revolver state that the arm should be carried with the hammer resting in the safety notch; but many army officers and frontiersmen habitually carried one chamber of the revolver empty, with the hammer down on the empty chamber.

There will always be many revolver shooters who prefer an arm with a solid frame. These persons will unhesitatingly select the Colt revolver. The strength of this arm is undoubted, and it is believed that an unbiased judge would award the claim of superiority in standing rough usage to the Colt revolver. There has

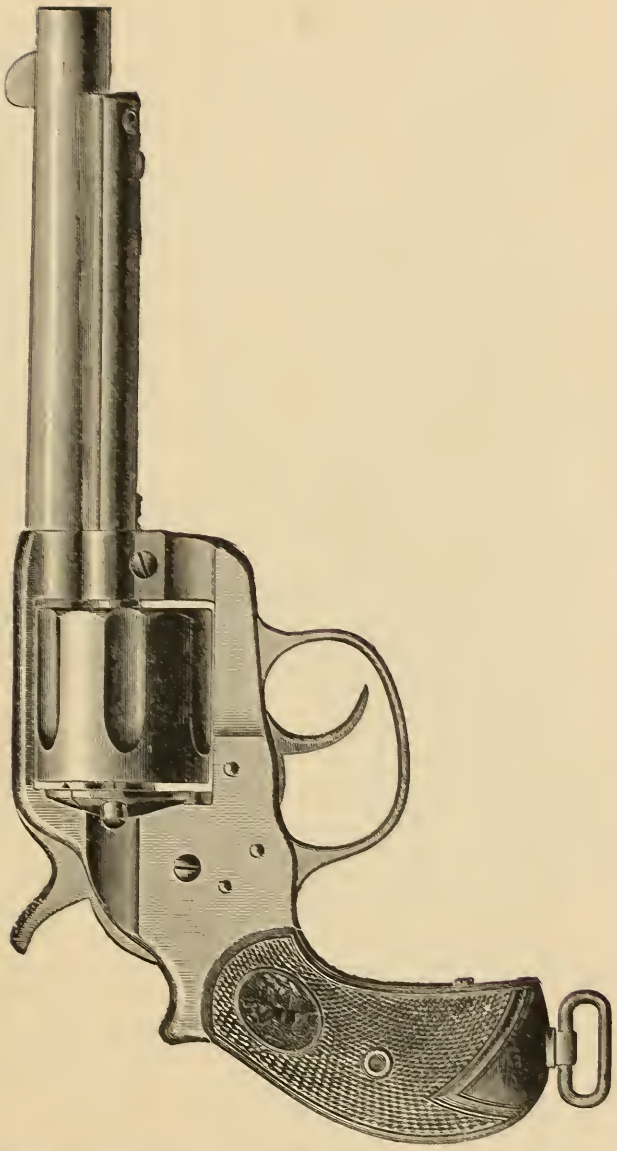

Fig. 29. — Colt Army Double-Action, .44 and .45 caliber.

been much testimony relative to the merits of different American arms presented by expert revolver shots during the past few years; the special uses of certain arms have made prominent desirable or undesirable features which have been pointed out. A careful summarizing of the opinions shows that a majority of revolver experts believe that the Colt revolver is not made with such delicacy of parts as some other arms; but it is evident that this very want of delicacy of the parts is much in favor of its adoption by those desiring a revolver powerful, accurate, and less affected by exposure to the elements; permitting neglect of care after using, and requiring less attention while using. It is believed that more shots can be fired from the Colt revolver without cleaning, and have it work well, than any other revolver of American

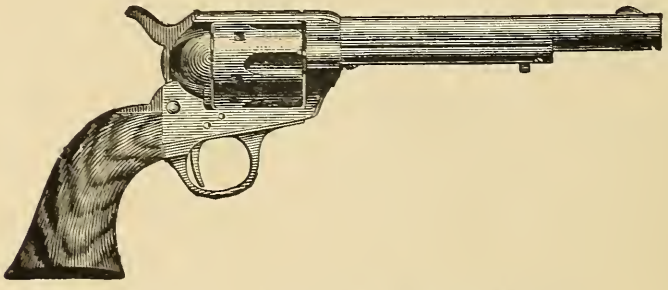

Fig. 30. — Colt Old Army Single-Action.

make. But with the cleaning found necessary to secure accuracy even with this arm, it seems to demand less attention than other revolvers; accurate shooting has been secured repeatedly, even after firing 100 shots, by simply swabbing out the barrel with a brush or cleanning rod with a cloth drawn through a slot, and without removing the cylinder, which worked well after firing 200 shots. The combined points of the solid frame and the arm being unaffected, so far as operating it is con-

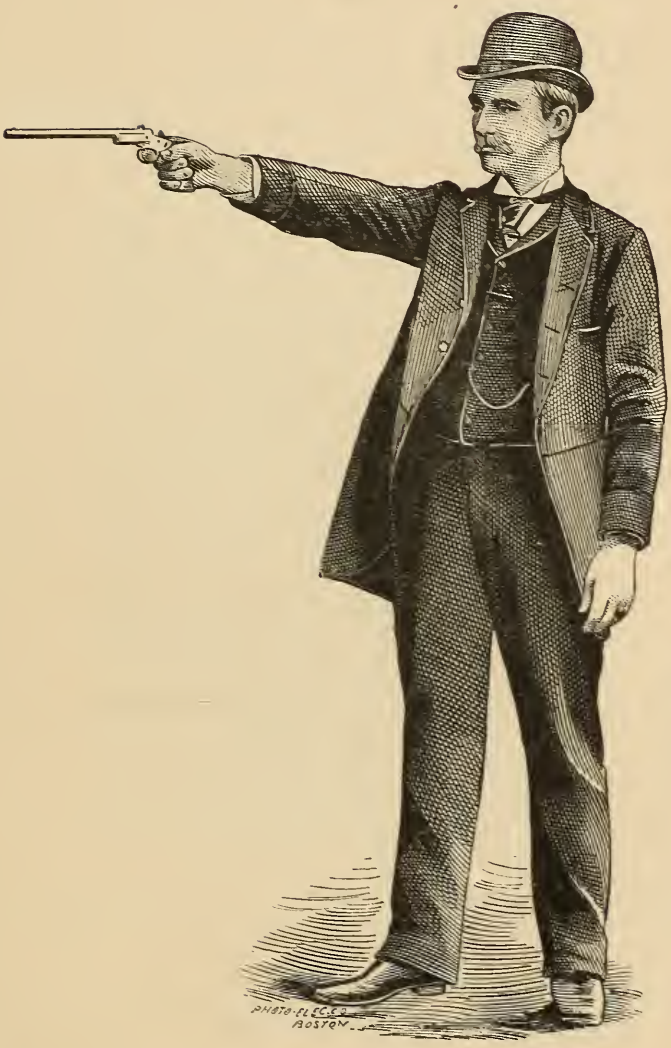

Fig. 31. — Mr. E. J. Darlington, Wilmington, Del. Amateur Pistol and Revolver Shot.

cerned, by neglecting to clean it while using or afterward, has made the Colt revolver the chosen arm of many frontiersmen, and probably influenced the members of the Government Ordnance Board in the past to favor this arm.

The old Army .45 caliber and Frontier model .44 caliber are identical in model, the difference being in the

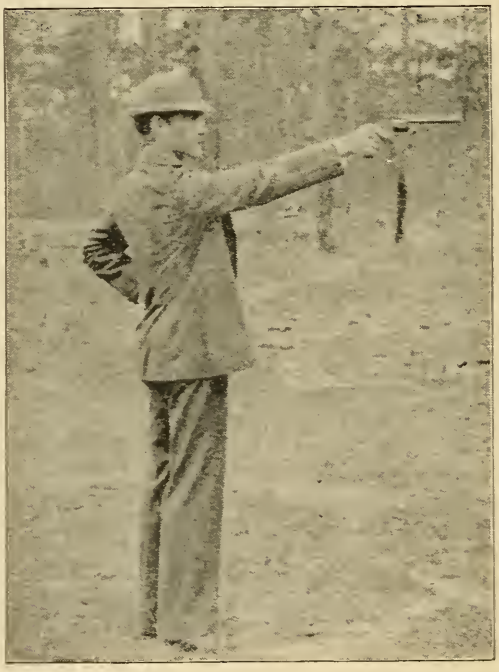

Fig. 32. — Mr. Will E. Carlin, Amateur Pistol and Revolver Shot.

caliber and the chambering. The cartridge for the Colt revolver formerly adopted by the U. S. Government, .45 caliber straight, is loaded with forty grains of powder and a 250 grain bullet. The .44 caliber Frontier model takes a magazine rifle cartridge holding forty grains of powder and a 200 grain bullet. Both of these cartridges are powerful and accurate. There is an apparent difference in the recoil, it being less in the .44 caliber rifle cartridge;

the fifty grains more of lead in the .45 caliber government cartridge noticeably increasing recoil. In a number of tests made with these two cartridges, better results were generally secured with the .44 caliber rifle cartridge, taking six shots for a standard, it being the number of chambers in these revolvers. It was not difficult to place the six shots in a five-inch circle at a distance of fifty yards, often in a four-inch circle, and

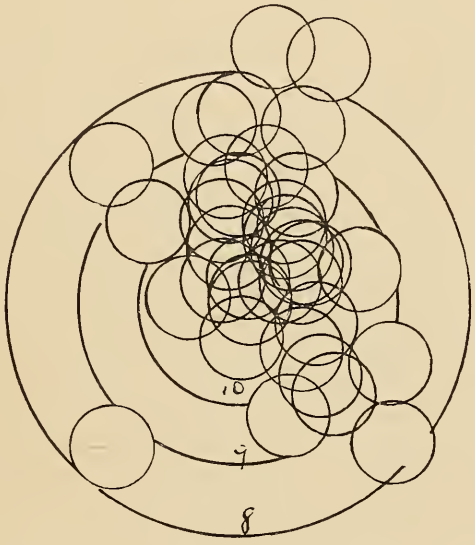

Fig. 33. — Thirty shots at 12½ yards with .44 caliber Colt revolver, by Mr. W. E. Carlin.

occasionally, with the .44 caliber 40–200 cartridge, a three-inch circle would touch or enclose all of the shots.

The .41 and .38 caliber revolvers of this company's make are very accurate and reliable arms; the .38 caliber, with the six and seven inch barrels, are chosen by persons desiring an accurate, quite powerful, and pleasant shooting weapon. The .38 caliber with the six and seven inch barrels are surprisingly accurate up to fifty yards; the recoil is light and not unpleasant. The charge is less powerful

than the .44 and .45, but about as heavy as is possible in an arm of its size and weight, and retain a satisfactory degree of accuracy. It is not difficult, in shooting with a rest, to place six shots with this arm within a three-inch circle at fifty yards; and this feat has been accomplished in off-hand shooting with a .38 caliber Colt revolver with a seven-inch barrel.

Notwithstanding the admitted excellence of the Colt revolvers, as formerly used by the United States Army and Navy, there was developed a feeling that the .44 and .45 calibers were unnecessarily powerful. Many papers were written by officers of the service recommending a revolver which could be reloaded quicker than the Colt revolver then in use, and shooting a less powerful cartridge. As a result the New Colt Double-Action Self-Cocking revolver, .38 caliber, was produced, and first adopted by the United States Navy, and later with slight modifications by the United States Army and the volunteer forces of several States.

A description of this new model is as follows: —

Its cylinder contains six chambers. In order to facilitate the loading of cartridges, and to allow the simultaneous ejection of the emptied cartridge shells, the cylinder is so mounted upon a crane, pivoted in the frame below the cylinder seat, that, on drawing the cylinder latch to the rear, the cylinder swings to the left and downward out of its seat in the frame. In this position all the chambers are presented for loading, while pressure against the end of the ejector rod under the barrel ejects all the shells. Then, after ejecting and loading, the cylinder is returned to its seat in the frame, the cylinder latch automatically securing it there.

The manufacturers of the Colt revolver claim, by this construction all the facilities for loading and eject-

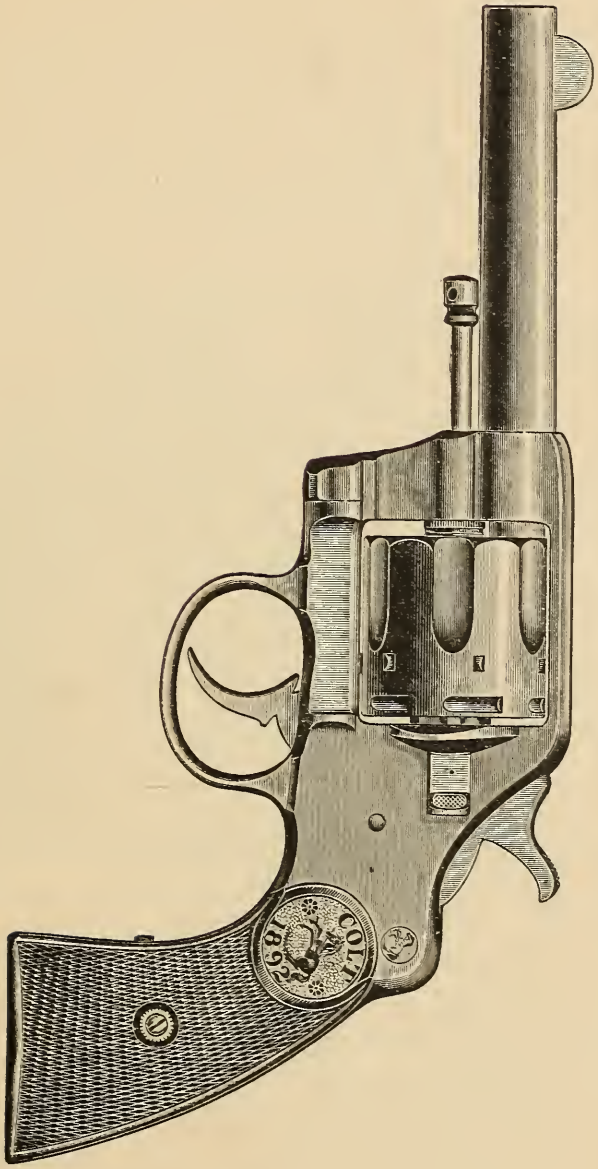

Fig. 34. — Colt Army Model 1892, .38 and .41 calibers.

ing are obtained without sacrificing the important feature of a solid frame, such as all modern Colt pistols show; for, there being no hinge or joint in the frame between the barrel and stock, there is no wearing which might disturb the accuracy of the pistol. Its working is simple, so as to be understood at once, while the absence of complicated and delicate parts prevents it from getting out

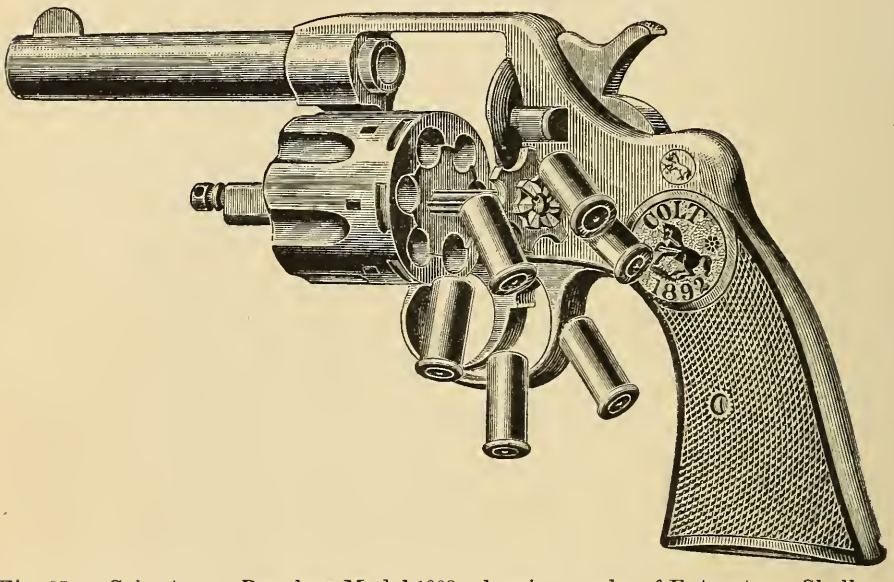

Fig. 35. — Colt Army Revolver Model 1892, showing mode of Extracting Shells.

of order. The lock mechanism also is very simple and strong. The hammer may be cocked by the thumb or by the trigger, and after firing it rebounds, and is positively locked in this safety position, so that it cannot strike the primer of a cartridge until it is again cocked. The cylinder cannot be swung out of the frame unless the hammer is in its safety position, and the act of swinging the cylinder out of the frame automatically locks the trigger and the hammer in this position. Thus premature discharges during manipulation are prevented, as also accidental discharges from blows, such as result from a fall, etc.

The falling of the hammer from any position cannot fire a shot unless the trigger is fully pulled back at the same time, as only then the hammer can fall beyond

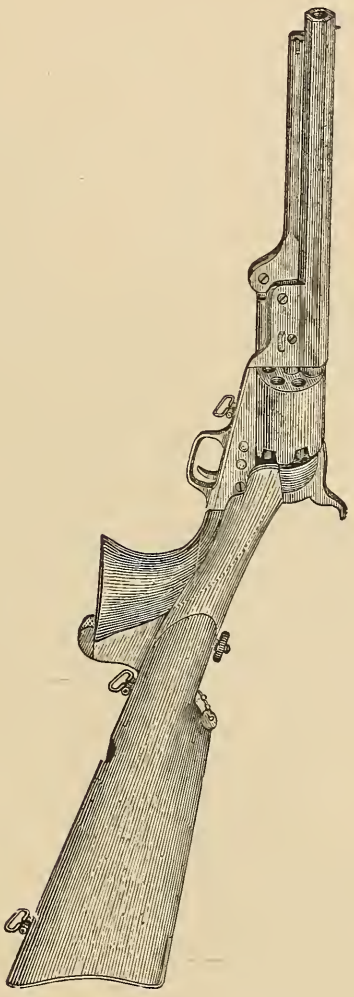

Fig. 36.— Old Model Colt Revolver, with Stock Attachment.

the safety position. The hand or pawl which rotates the cylinder has two working points to engage the cylinder ratchet, and by an ingenious construction this pawl also serves as cylinder bolt, and positively prevents any further

rotation after one of the chambers in the cylinder coincides with the bore of the barrel. The cylinder latch prevents its backward rotation.

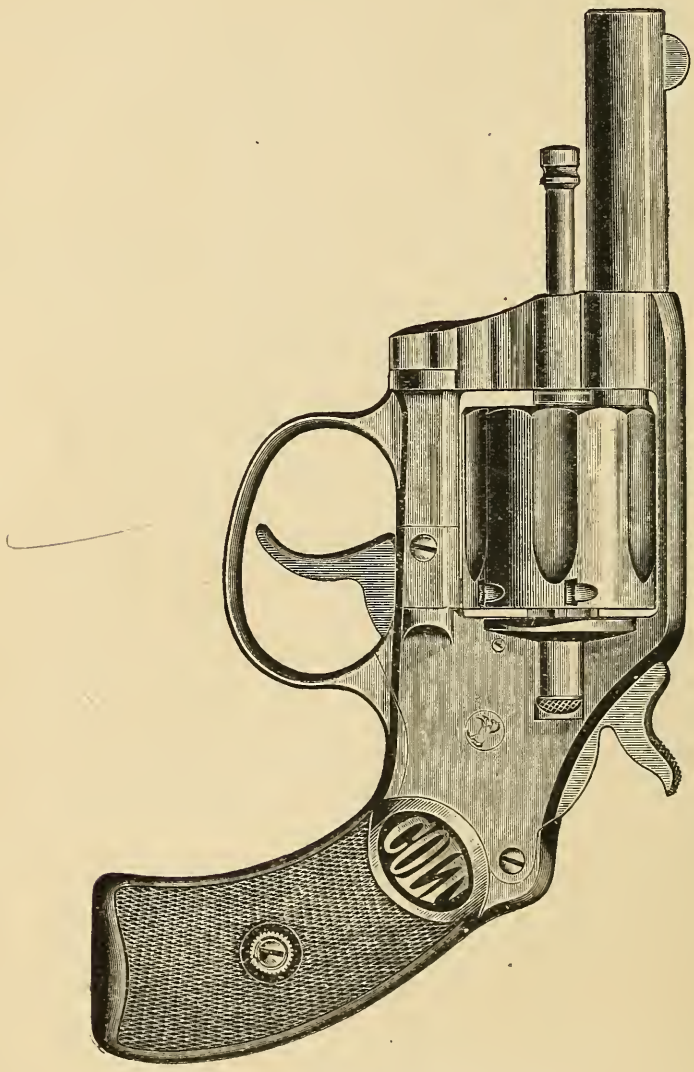

Fig. 37 — Colt New Pocket .32 Caliber.

Fig. 34 gives a view of it as closed; Fig. 35 shows it with the cylinder swung out, and the ejector is represented in the act of throwing out the empty shells, after

which it will be automatically returned to its place in the cylinder, which then will be ready for loading.

The latest product of this company is known as the New Pocket Revolver. This model embodies the princi-

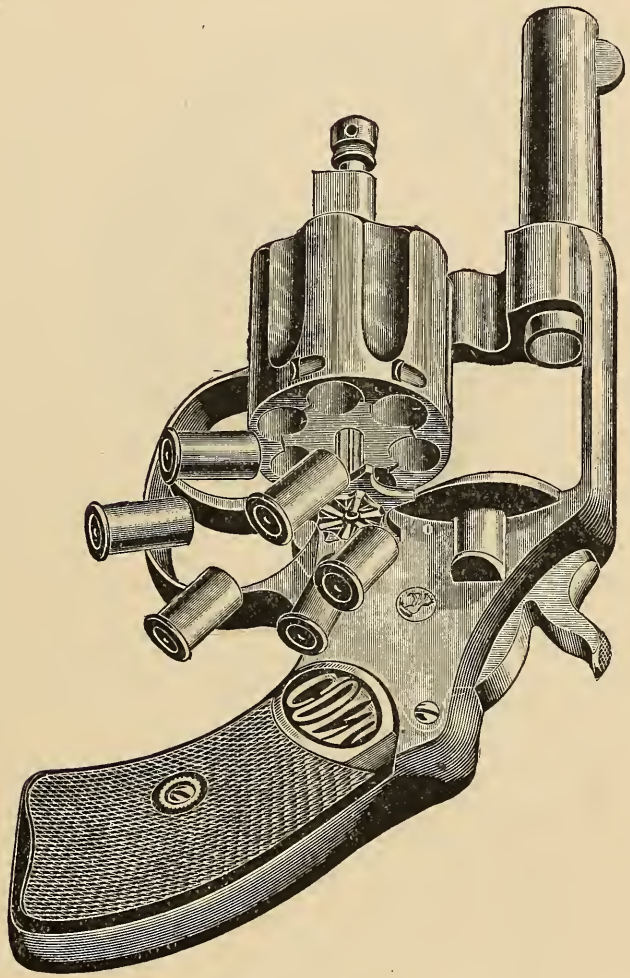

Fig. 38. — Colt New Pocket Revolver.

ples of the new model army revolver made by this company, but is on a small scale, the arm being intended as a pocket weapon. It is chambered and rifled for various .32 caliber cartridge, and will shoot either long

or short Colt cartridge, or the .32 Smith & Wesson cartridges. It can, like the army model, be used either as a single-action revolver, or as double-action. The arm is

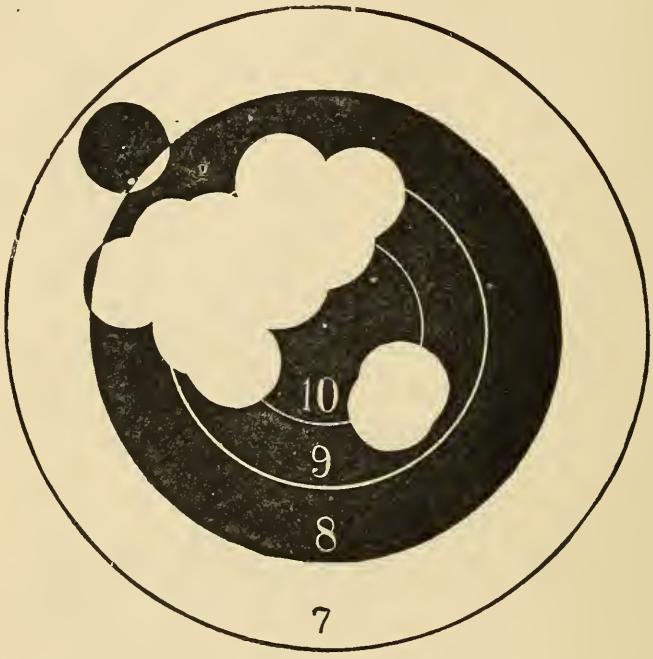

Fig. 39. — Diagram of twelve successive shots, full size, at fourteen measured yards, by Mr. Walter Winans Shot at the Brighton, Eng., Rifle Gallery, Feb. 14, 1889, with a Colt .45-caliber revolver, with full charge English Army Ammunition "Mark I." Score 116 out of a possible 120.

compact, well made, and have no reason to doubt its accuracy, but at the time of writing have not been able to submit it to a practical test. It weighs one pound. Fig. 37 shows the revolver, as does Fig. 38, the latter illustrating the mode of extracting the shells after firing.

CHAPTER IV.

AMERICAN REVOLVERS — SMITH & WESSON'S PRODUCTIONS.

THE armory of Messrs. Smith & Wesson is at Springfield, Mass., and is said to be the most complete establishment for the manufacture of revolvers in the world. The work produced at this armory has an extensive reputation, their products being sent to nearly every country on the globe. The revolvers are beautifully made, as perfect as it seems possible to construct them: they have a pleasing contour, are symmetrical, well balanced, and possess great accuracy. These revolvers were formerly constructed in calibers from .22 to .45, but a few years ago this firm discontinued making the .22 caliber. Formerly the .22 and .32 calibers were opened by pressing a clutch under the action, and the barrel and cylinder were pushed upward; the cylinder was then removed, and the shells, extracted from the cylinder by a fixed post. Later, the invention of the automatic shell ejector was added, and the revolver opened by a clasp; the barrel and cylinders tip downward, the action at the same time ejecting the shells. This mechanism is one of the greatest inventions ever made in connection with revolvers, and was quickly adopted by most of the revolver manufacturers, both at home and abroad, as early as the patents covering the invention expired. All of the revolvers now made at the factory of Smith & Wesson are after this model, and are known as follows: —

New Model Army, No. 3: weight, 2½ pounds; central-fire; caliber .44; six shot; length of barrel, 6½ inches.

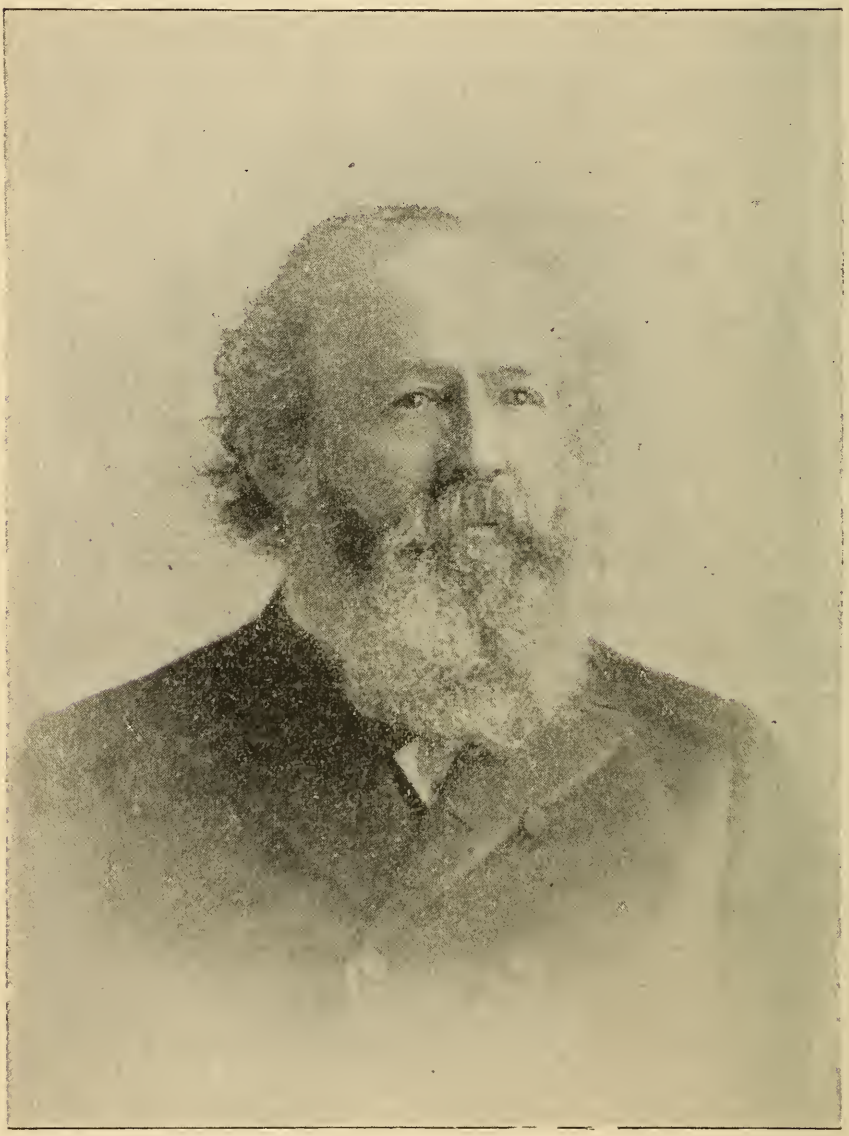

Fig. 40. — Mr. D. B. Wesson, inventor of the Smith & Wesson Revolver.

New Model Navy, No. 3: double-action; central-fire; caliber .44; six shot; weight, $2\frac{3}{16}$ pounds; length of barrel, four, five, and six inches.

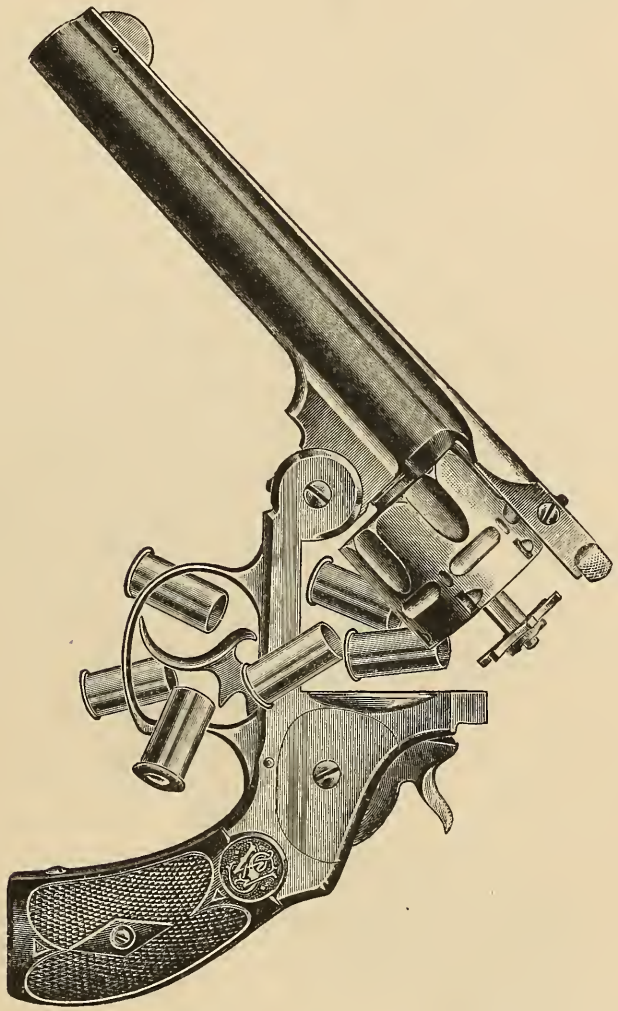

Fig. 41. — Smith & Wesson Navy Revolver, adapted for various .44 caliber cartridges.

Frontier Revolver: .44 caliber; single-action; central-fire; weight, $2\frac{7}{16}$ pounds; six shot; length of barrel, four, five, and $6\frac{1}{2}$ inches.

Frontier Revolver: .44 caliber; double-action; central-

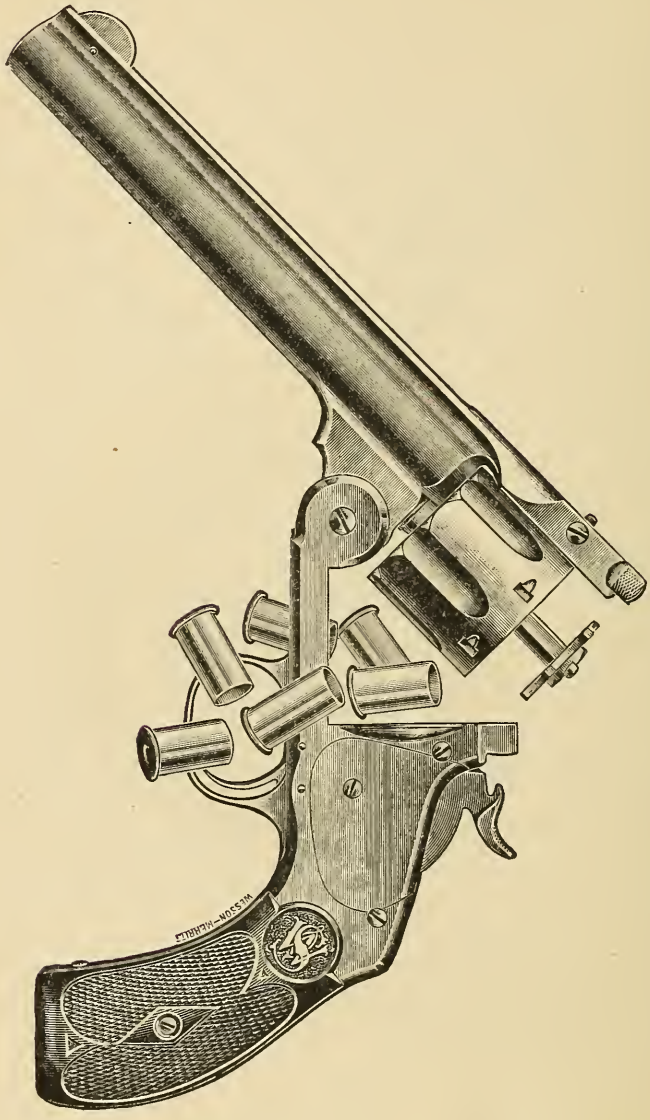

Fig. 42. — Smith & Wesson Army Revolver. Adapted for the Russian or the Frontier Cartridge.

fire; weight, $2\frac{3}{16}$ pounds; six shot; length of barrel, four, five, six, and $6\frac{1}{2}$ inches.

New Model .38, model of 1891 : weight, sixteen ounces ; central-fire ; caliber .38 ; five shot ; length of barrel, 3¼, four, five and six inches.

New Model .38 : double-action ; central-fire ; caliber .38 ; five shot ; weight, 18 ounces ; length of barrel, 3¼, four, five, and six inches.

New Model .32 : weight, thirteen ounces ; central-fire ;

Fig. 43. — Ten shots at fifty yards by Mr. F. E. Bennett. Shot with a Smith & Wesson .44 caliber Russian Model Revolver with U. S. Cartridge Co's ammunition.

caliber .32 ; five shot ; length of barrel, three, 3½, and six inches.

New Model .32 : double-action ; central-fire ; caliber .32 ; five shot ; weight, fourteen ounces ; length of barrel, three, 3½ and six inches.

New Model Hammerless Safety Revolver : central-fire ; calibers .32 and .38 ; weight in .38 caliber, 18½ ounces, with barrels of different lengths.

New Target Revolver, .32–.44: single-action; central-fire; six shot; weight, $2\frac{11}{16}$ pounds; length of barrel, $6\frac{1}{2}$ inches.

New Target Revolver, .38–.44: single-action; central-fire; six shot; weight, $2\frac{9}{16}$ pounds; length of barrel, $6\frac{1}{2}$ inches.

Probably the chief reason why the products of Smith & Wesson are so excellent, is because since 1859, this firm has been engaged exclusively in this special line of work. They endeavored to procure and construct the most complete and perfect machinery for the manufacture of their revolvers; and by the system of inspection of parts adopted by this firm, the slightest imperfection in material and workmanship may be detected, and when discovered is instantly condemned.

It has been my privilege to visit the factory of Smith & Wesson many times, where the greatest freedom was granted me for inspecting the various processes of manufacturing these famous revolvers. The highest mechanical skill is employed; the minutest defect of a part causes it to be rejected; the gauges are superfinely constructed, and when a part is fitted to a gauge it is so perfect that the human eye can scarcely detect the part from the gauge.

The barrels, cylinders, and all the small parts, are made of the best quality of cast steel, and the framework of Bessemer steel, made at Troy, N. Y.

I have closely watched the impressions made upon some of the most skillful mechanics in America when a Smith & Wesson revolver was submitted for their inspection. These severest of critics would seem to revel in the pleasure they experienced in seeing such a perfect piece of mechanical work, and unhesitatingly commended the workmanship in the highest terms. A famous maker of hand-made dueling pistols in France spent days in

examining the Smith & Wesson Russian model army revolver, using a magnifying glass for the purpose of putting on the finest possible finish in the mechanism, in order to

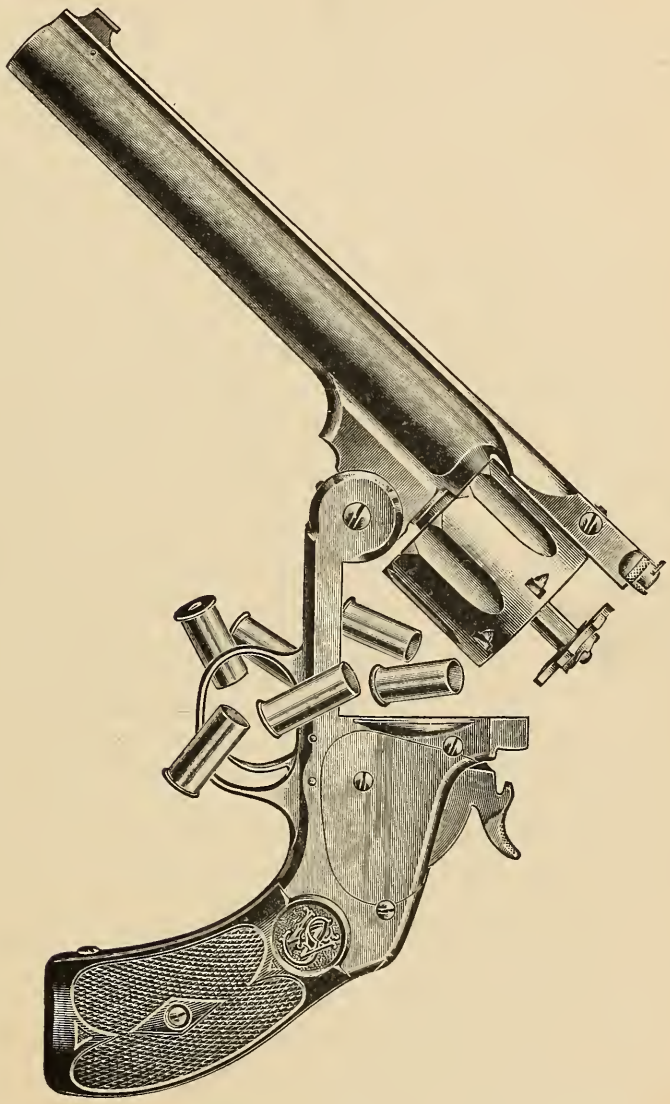

Fig. 44. — Smith & Wesson Target Revolver, made in .45, .44, .38 and .32 caliber.

gain an absolute perfect working of the parts. He pronounced it the finest work he had ever seen produced by machinery.

One of the noticeable points of excellence in the Smith & Wesson revolver, insured by the perfection of the parts, is the complete revolution of the cylinder, which brings the chamber exactly opposite the barrel when the revolver is cocked; it being absolutely necessary that the chamber be opposite the barrel at the moment of the discharge of the weapon to secure accurate results at a long distance. I have fired shots, from revolvers well known to the trade, where the cylinder did not bring the chambers exactly opposite the barrel, and on shooting the bullets into soft snow, gathering them afterwards for inspection, I found one side of the bullet shaved or scraped off, which I believe the reader will see is likely to impair the accuracy of the arm. This fault is common in the cheap revolvers, but is not found in Smith & Wesson revolvers.

The arm is operated as follows: Holding the revolver by the handle in the right hand, lift the barrel catch with the left thumb and forefinger. When the barrel catch is clear of the barrel, the cylinder tips downward, the cartridges are then placed in the chambers, the barrel is swung back into position, when the barrel catch locks the parts together; the hammer cocked, the arm discharged, then opened as before described, the barrel brought down to a certain point, which acts automatically, and ejects the shells.

The .32 and .38 caliber revolvers manufactured by this firm are chiefly used for pocket weapons; but some are manufactured with barrels six inches in length, which make excellent target pistols for twenty-five or fifty yards' shooting; those of the latter caliber are now classed with military revolvers. Since revolver shooting has become popular in America, a more intelligent study of this arm has been made by marksmen than ever before; and

while the advantages of a solid framed revolver with a fixed barrel are admitted for certain uses, it seems to be generally admitted that for fine work, where accuracy is the chief object, no revolver is equal to one which permits an inspection of the inside of the barrel. Any revolver which takes a cartridge of sufficient power to make it

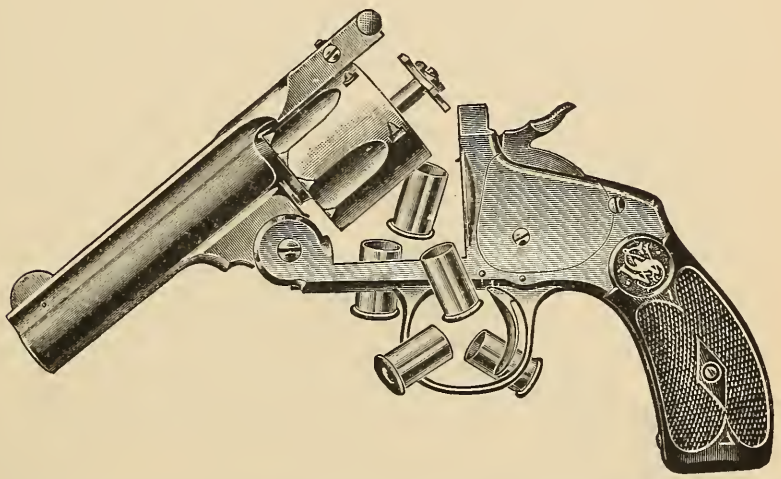

Fig. 45. — Smith & Wesson .38 caliber Single-Action Pocket Revolver.

a suitable weapon of defense, will foul, with most of the present ammunition in use, to such an extent as to impair the revolver's accuracy after a dozen shots, and many believe such is the case with a less number. It is therefore the custom of all the best revolver shots the writer has ever met, when using full charges and wishing to do fine work, to clean the inside of the barrel as often as every ten shots; an easy operation with revolvers made by this firm.

The old American model Smith & Wesson revolver was a great favorite with those who knew what weapon to select for reliable work. Many are in use to-day, and highly valued as very accurate weapons; but this model was superseded by a new model army re-

volver, which is generally known as the .44 caliber Russian model, the name being given on account of the Russian government purchasing 150,000 of them for her cavalry. This model seems to grow in popularity each year, and many of the best revolver target shots in America have selected it as their choice of weapon. Some time ago, when the late Chevalier Ira Paine, the expert pistol shot, decided to introduce revolver shooting as one of the attractions of his exhibitions, he consulted Gastine Renette,

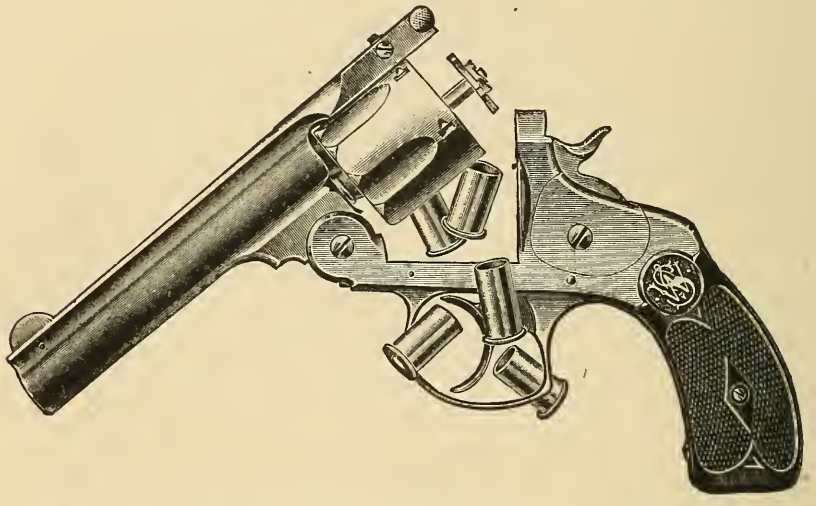

Fig. 46. — Smith & Wesson .38 caliber Double-Action Pocket Revolver.

the famous pistol manufacturer of France, as to the best weapon for his purpose. His object was to find the most accurate revolver which would shoot a light charge at short range, indoors, avoiding noise and smoke, and a charge powerful enough to do accurate shooting up to fifty yards or more, powerful enough to be considered an army pistol. These two experts spent a great amount of time in this work, firing thousands of shots from a rest and off-hand. They soon discovered what the writer has mentioned, that, with revolvers of some make, the

chambers not stopping exactly opposite the barrel, the accuracy was affected; but in all their experiments no revolvers came so near perfection as the .44 caliber Russian model Smith & Wesson revolver, and Chevalier Paine

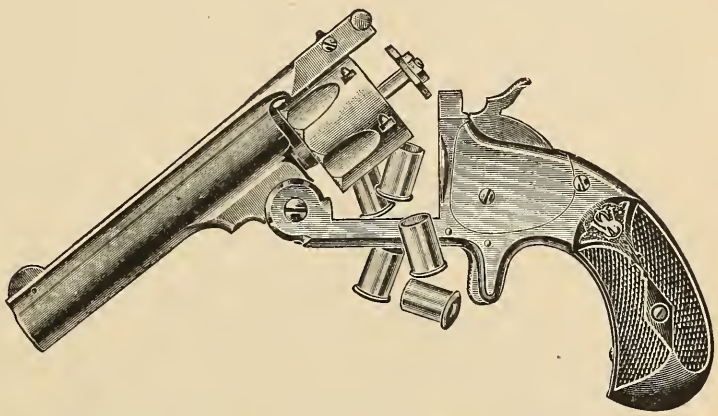

Fig. 47. — Smith & Wesson .32 caliber Single-Action Pocket Revolver.

used that revolver exclusively until his death, in his stage work and outdoor shooting.

As there are many who wish to shoot a light charge for target-work, but recognize that the six-inch barrel is necessary, as well as a handle of proper size to grasp, the manufacturers have produced .32 and .38 calibers in this model, which have become popular, for they are very accurate, and have excellent sights for fine work.

Of those who select the Smith & Wesson revolver a majority choose the Russian model; a portion selecting the .32 or .38 calibers and many the .44 caliber. Those who choose the .44 desiring to shoot a weapon which is both powerful and accurate, the Russian model possessing both of these points. In testing this model .44 caliber for accuracy at a distance of fifty yards, taking six shots for a test, this being the number of chambers in the cylinder, marksmen have repeatedly,

when shooting the arm with a rest, placed the six shots in a three-inch circle at fifty yards.

A new departure in revolvers was made in the Smith & Wesson hammerless safety revolver, which was put on the market a few years ago, and possesses many points of originality and excellence. The inventor of this novel mechanism is Mr. D. B. Wesson, who has previously contributed so much toward developing the American

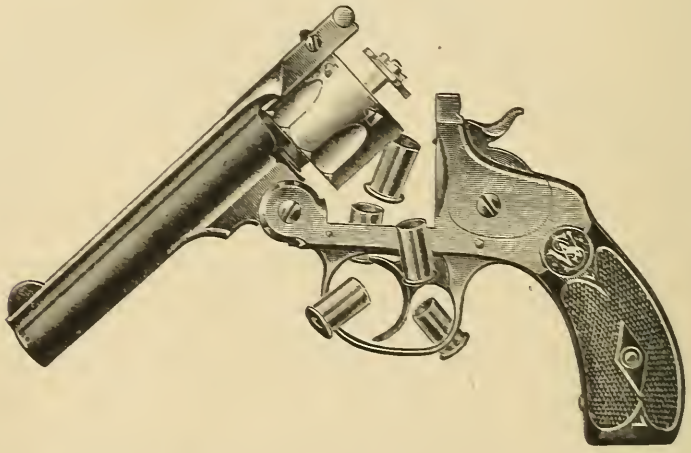

Fig. 48. — Smith & Wesson .32 caliber Double-Action Pocket Revolver.

revolver. The principle is applied to a pocket revolver or to a military revolver.

A hammerless revolver, a short time ago, would have been considered an unsafe weapon. In this new revolver will be found less liability to accidental discharge than in any weapon of its class I have ever inspected, this being one of the chief objects kept in mind while the inventor developed his mechanism.

A large proportion of the accidents which occur with revolvers arise from carelessly manipulating the hammer or trigger, or from leaving the weapon full cocked for some child or novice to find and accidentally discharge. The

pulls on different revolvers vary to such an extent that sometimes when a strange revolver with an exposed hammer is in the hands of an expert, an accidental discharge is liable to occur. This is avoided in the new hammerless revolver.

In addition to the visible hammer being the cause of many accidents is the constant annoyance caused by its projecting and interfering with quickly drawing the

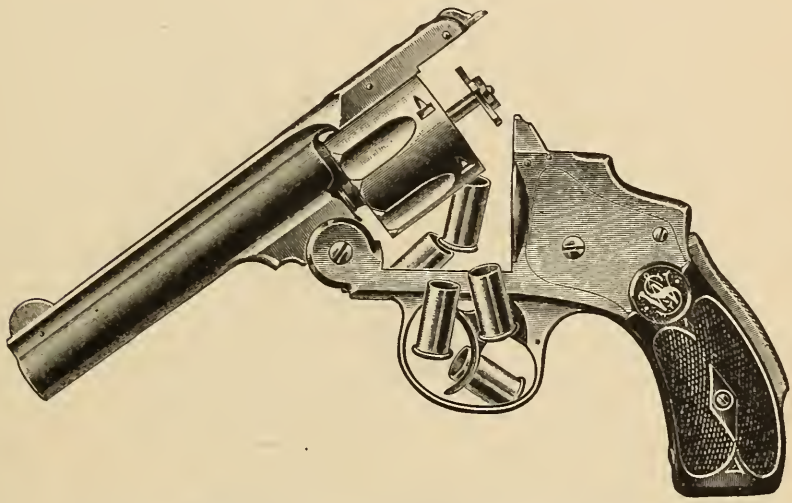

Fig. 49.—Smith & Wesson .38 caliber Hammerless Revolver, six inch barrel classed as Army Revolver, with four inch barrel and under as Pocket Revolvers.

weapon from the pocket or holster. The weapon described is for the use of the soldier, the police officer, or for those called upon to use this weapon of defense rapidly and effectively. Hence a self-acting or self-cocking revolver is desirable; and by dispensing with the projecting outside hammer the rapidity of action in drawing the weapon is increased, and a desirable point gained.

The illustration shows the mechanism of the new arm.

A is the safety lever, B safety latch, C hammer, D trigger, F mainspring, G safety-latch spring. The ham-

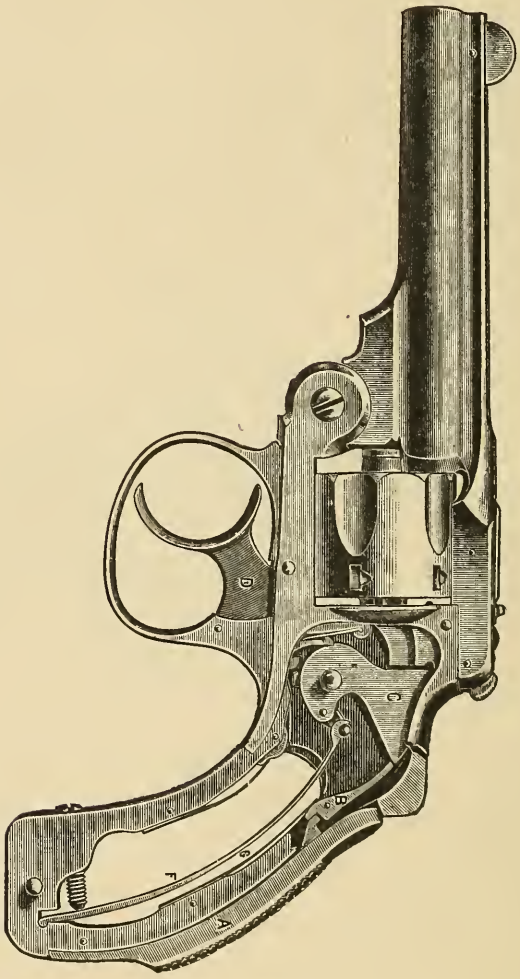

Fig. 50. — Illustration of mechanism of Smith & Wesson Hammerless Revolver.

mer C, which is acted upon and raised by the trigger D, as in their self-cocking arms, is kept constantly locked by the safety-latch B, which is held in position by the safety-latch spring G. The point is emphasized, that when not in use the arm cannot be discharged, as will be seen from the arrangement of the parts. When held in the hand

for firing, the natural pressure exerted by the hand in the movement of pulling trigger, and the approach to the point where the last ounce of pressure discharges the weapon is easily detected. Previous to the last ounce of pressure being given, a careful aim is taken, the final pressure applied, and the weapon discharged.

Soon after the Smith & Wesson hammerless revolver was placed upon the market the attention of officers of the U. S. Cavalry was attracted to the arm. Considerable correspondence in relation to the matter was developed. This correspondence was in the form of letters from Col. Elmer Otis of 8th U. S. Cavalry, and others, to the Assistant Adjutant General of the Department of Dakota, and communications to the Adjutant General U. S. Army and Assistant Adjutant General Department of Dakota, as well as to Capt. Philip Reade, 3d Infantry, Inspector of Small Arms Practice, Division of the Missouri.

At that time I was invited by army officers to give my opinion as to the best revolver for the U. S. Army, but the nature of my position forbade my doing so if I desired; besides I preferred to be a chronicler of events rather than an advocate of any system.

It was evident that Colonel Otis and others had a preference for the Smith & Wesson hammerless safety revolver, judging from the following excerpts, which also show some changes were desired in revolver practice in the U. S. Army. Colonel Otis recommended removing pistol practice from carbine practice, in order that proper attention be given to becoming proficient in the use of the revolver. He said: "The pistol practice should be as extensive as that for the carbine. For close quarters it is a most efficient arm if properly handled. But it is intended only for close and rapid firing. I would not desire men whom I lead to commence firing at a greater

distance than twenty yards, and recommend lowering the pistol, extending the arm and firing, the same as you would point your finger. As you fire at least two shots with the pistol to one with the carbine, half the time (one month) allotted to the former is sufficient.

"It is thought," continued Colonel Otis, "that a double-action revolver would add greatly to the accuracy of fire. The danger of premature discharge with a double-action pistol, constructed like the Smith & Wesson, is thought

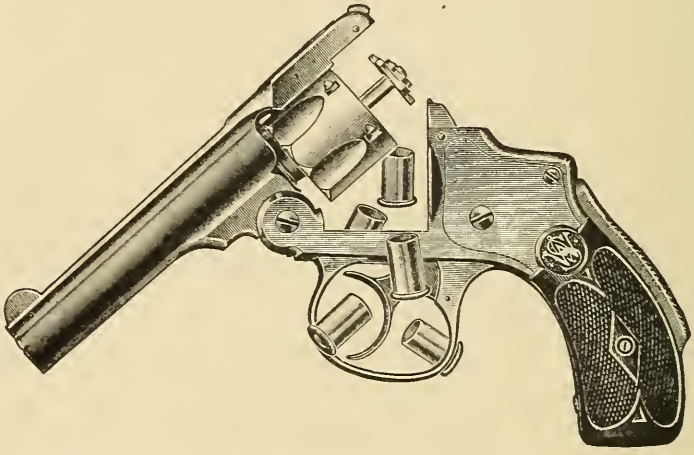

Fig. 51. — Smith & Wesson .32 caliber Hammerless Revolver.

to be less than with the present revolver. The .45-caliber is unnecessarily large, and the range greater than there is any need for. A reduction in the former, therefore, decreasing weight of pistol and ammunition, would be a gain to the trooper in comfort, and would not detract from the effectiveness of the weapon. An effective range of sixty yards is sufficient, and a pistol would not and should not be used at a greater. I desire to have my regiment armed with a good, strong, and effective pistol before the commencement of this season's practice, and request to be informed whether or not requisitions for

Fig. 52. — Smith & Wesson Revolver with Rifle Stock attached.

the Smith & Wesson double-action revolver can be filled. A trial would afford an opportunity for comparison for the two classes of pistols, and demonstrate which would be the better arm for mounted troops.

"The pistol can be made an effective arm in the hands of instructed men, but the first requisite is that the weapon itself be as perfectly constructed as possible. If we are to have a pistol, let us have the best, and let us be properly instructed in the same, so that we can work with it with confidence and precision."

A requisition for 100 of the .38 caliber safety hammerless Smith & Wesson revolvers was made, and they were shipped from the factory in July, 1890.

One of these revolvers was submitted to me, and I devoted some time to examining and testing it, making the following report: —

The revolver weighs twenty-one ounces; it is similar in model to the regular .38-caliber safety hammerless pocket revolver, except there is an improvement in the barrel clutch which makes it impossible to discharge the arm if the barrel clutch is not fully down; or if one partially closes the action, and the barrel clutch is not in its proper place, the cylinder fails to revolve and the arm cannot be discharged. This improvement adds another feature of safety to this revolver. The barrel is six inches long, exclusive of cylinder. In testing this revolver for accuracy, it was at once seen that it was far more difficult for a person accustomed only to the use of a target revolver with a light trigger pull, to shoot it as accurately as the other revolvers of this firm's manufacture. It is beautifully made, in every particular equal to the other fine products of this firm; but the self-cocking pistol is at first difficult to hold steadily while applying pressure sufficient to discharge it. Shooting at the fifty-yard pistol target, it

was difficult at first to hold it still and apply the pressure required; but the bullet would strike where the revolver was aimed at the moment of discharge. I mention this and emphasize it; for probably many excellent pistol shots, unaccustomed to the use of a self-cocking revolver, will express disappointment at the first trial of this arm.

The hammerless safety system is a radical departure from the single-action pistol; and few persons, I imagine, who have been trained only to the light trigger pull of the target pistol will be able to shoot it at once with great accuracy. On the other hand, it has been found by actual experiment that, in the hands of those who only occasionally use a revolver, some of whom were cowboys of Colorado, a number would do more accurate work with one of these revolvers than with the target revolver, — due, no doubt, to the fact that the necessary pull rather steadied than disturbed the untrained nerves. If, however, one accustoms himself to shooting this arm, the trigger finger naturally becomes trained so as to apply sufficient pressure to nearly discharge it; then secure a good aim, apply a little more pressure to the trigger, and the arm is discharged. This, be it understood, applies chiefly to firing with a steady aim. Each time I shot this arm I experienced less difficulty and made better targets. I therefore feel warranted in expressing my belief that one with practice can acquire sufficient proficiency to shoot at fifty yards, and place a majority of the shots in the regulation bulls-eye. The arm contains features which make nearly all the accidental discharges in other revolvers impossible in this; it is a more rapid firing arm than any single-action revolver; it is very light and compact, and it is claimed by some cavalry officers is sufficiently powerful, and is capable of deadly and rapid work at the range indicated by Colonel Otis.

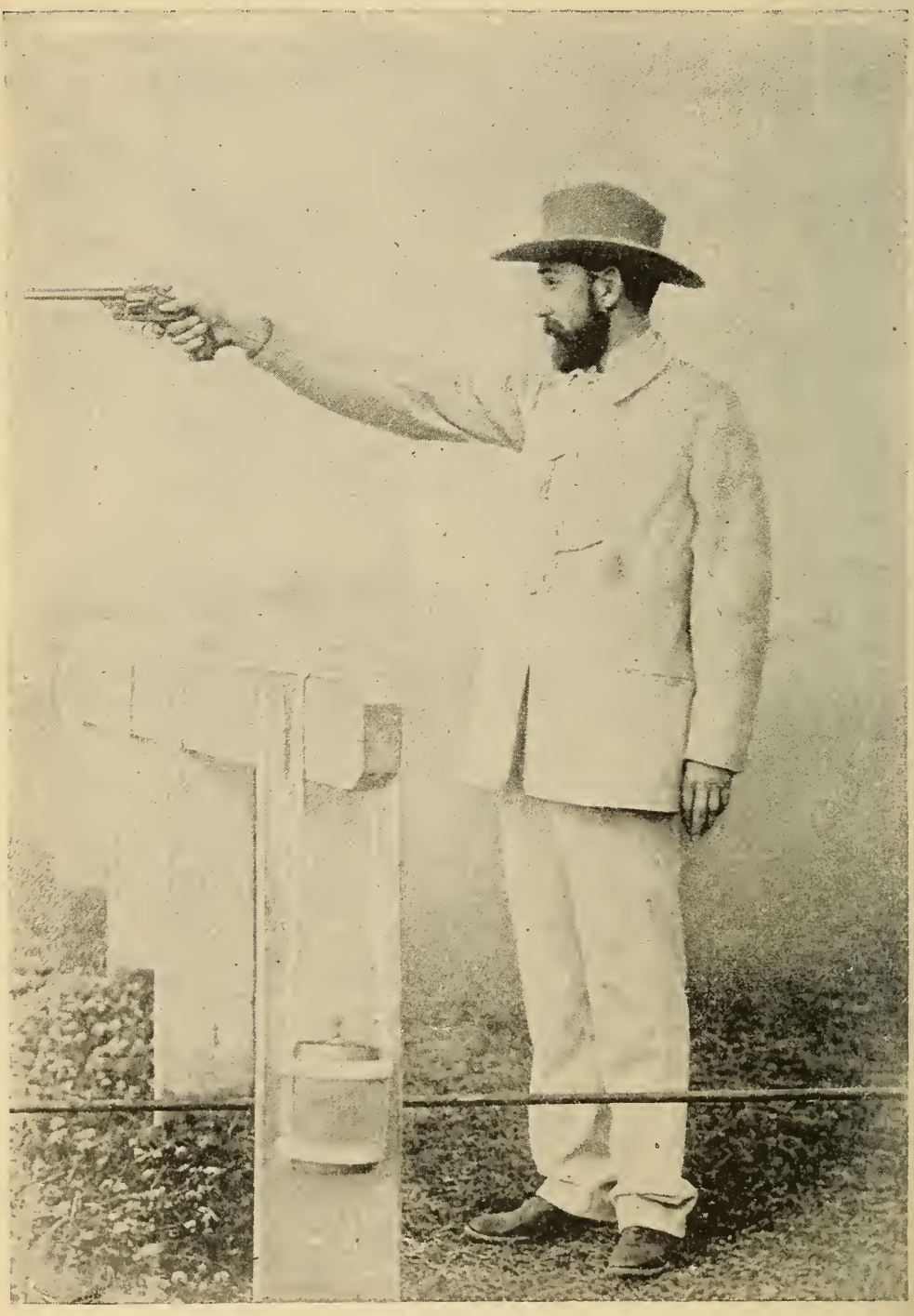

Fig. 53.—Mr. Walter Winans, winner of most of the English Revolver Competitions with American Revolvers.

When these revolvers were completed and before they left the factory, each arm was shot for accuracy. The shooting was done by Mr. Z. C. Talbot, the well known rifleman. He fired ten shots from each revolver, or 1,000 shots in all. The Standard American target, with a two-inch bullseye was used, and the shooting done off-hand at a distance of twelve yards, a new target being taken for each series or each revolver. Following are the totals of the 100 shots in ten shot scores: —

1st Series.	2d Series.	3d Series.	4th Series.
82	83	93	76
82	83	90	76
81	83	93	75
81	83	93	75
81	82	87	75
81	82	87	74
80	82	83	91
80	82	85	84
80	82	85	87
80	82	81	80
808	824	877	793
Av'ge 80.8	82.4	87.7	79.3

5th Series.	6th Series.	7th Series	8th Series.
86	78	80	84
78	78	80	86
78	77	80	84
84	77	79	87
85	77	79	85
85	77	79	90
85	86	79	87
85	77	78	89
86	77	78	89
86	77	78	89
838	781	790	872
Av'ge. 83.8	78.1	79.0	87.2

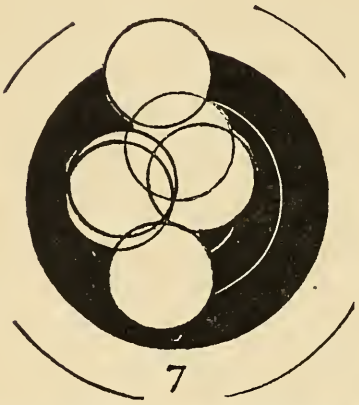

Fig. 54.—Six shots at twelve yards with .44-caliber Smith & Wesson Revolver, by Theo. E. Beck, New York.

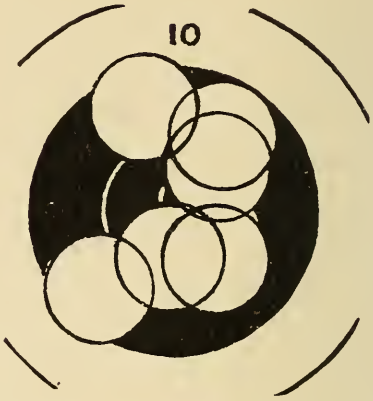

Fig. 55.—Six shots with Smith & Wesson .44-caliber revolver, at twelve yards, by Alfred Brennon, New York.

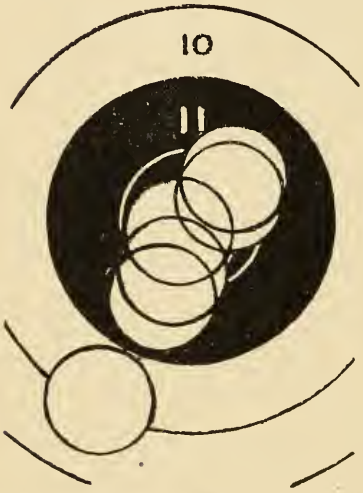

Fig. 56.—Six shots with Smith & Wesson .44-caliber revolver, at twelve yards, by Theo. E. Beck, New York.

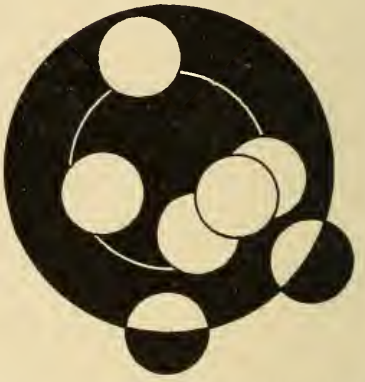

Fig. 57. — Seven shots at twelve yards, with a .32-.44 Smith & Wesson Revolver, made by Walter Winans, at the Brighton Rifle Gallery, England, Nov. 16, 1888.

9th Series.	10th Series.	Summary.
88	88	2—824
88	88	1—808
88	88	7—790
87	88	3—877
87	84	5—838
87	84	8—872
87	84	4—793
87	84	6—781
86	84	10—855
86	83	9—871
871	855	100) 8309 (83.09 Av'ge.
Av'ge. 87.1	85.5	Total No. of points, 8309.

Average per score, 83.09. Average value per shot, 8.30.

As twenty yards was mentioned as the range at which Colonel Otis desired his firing to begin, some experiments in rapid firing were tried at that distance by experts in presence of the writer. It was not a difficult performance to place the five shots the revolver was charged with, in the eight-inch bullseye, firing with considerable rapidity and without lowering the aiming arm. The recoil being light, one could quickly recover the aim lost for a second by the discharge. This inability to take a quick, accurate shot with a heavily charged revolver is almost invariably experienced by those shooting such arms.

Another interesting experiment was tried. Standing opposite a row of targets, at twenty yards, one shot only would be placed on each target without lowering the arm and firing rapidly. At that range, with a steady aim, hitting the bullseye would be a very ordinary performance; and following the manner of shooting described, it showed the arm capable of being handled effectively at that range.

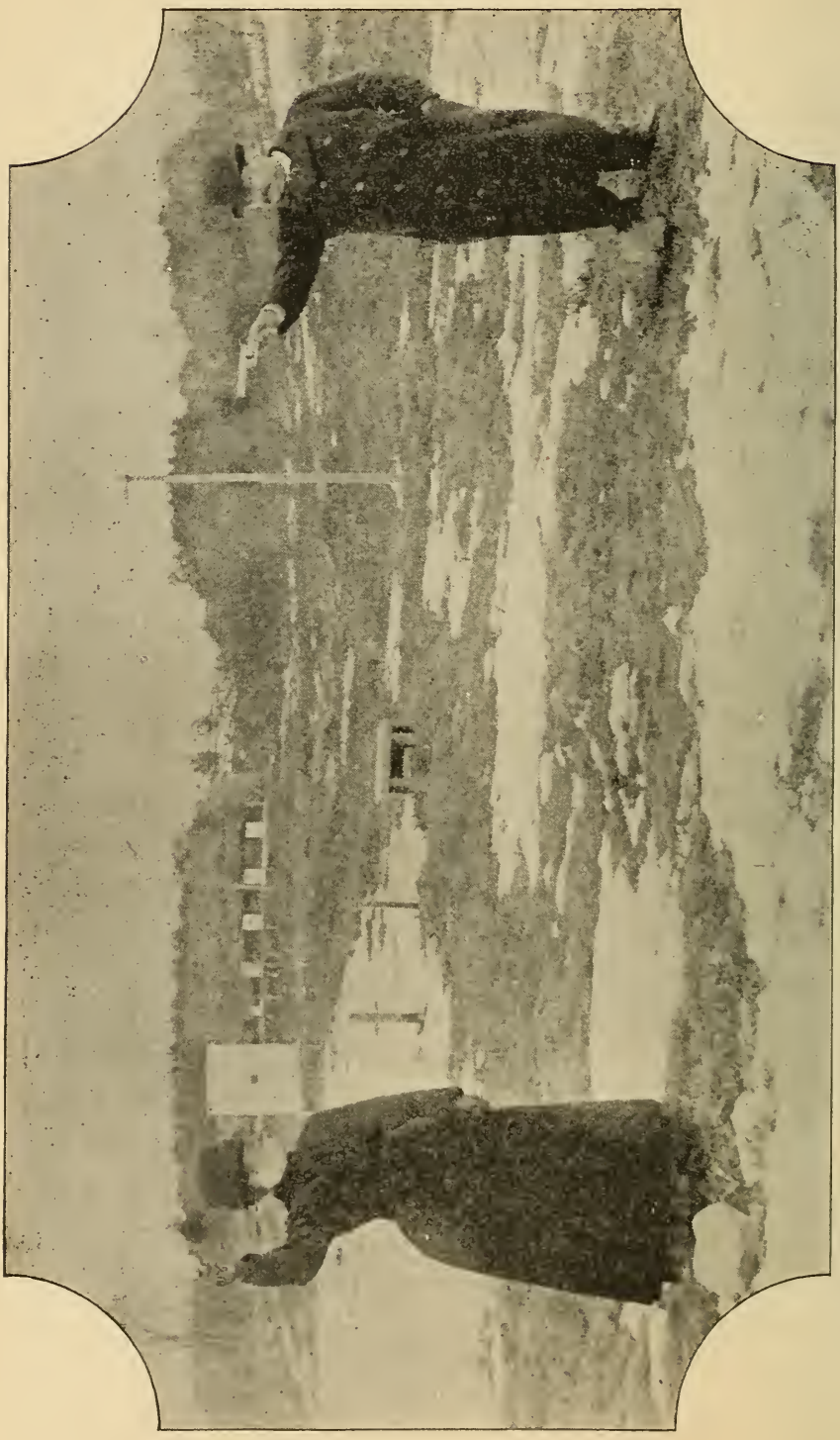

Fig. 58.—Chevalier Ira Paine shooting a Glass Ball from his wife's hands with a Smith & Wesson .44 cal. Russian Model Revolver. From a photograph taken at Walnut Hill, Mass., by the author.

CHAPTER V.

MISCELLANEOUS REVOLVERS. — REVOLVERS CLASSIFIED.

THE Smith & Wesson and the Colt revolvers are generally recognized in America as the best types of revolvers for military work. The world at large, it is thought, would think likewise if familiar with the various products of different countries in this line. The superiority of these two makes of weapons warrants the space given in describing them. But there are other revolvers held in esteem by some. The Remington revolver is a strong, well-made arm, and shoots accurately. It fires six shots; is .44 caliber; has barrels 5½ and 7½ inches in length; and shoots the .44–40–200 cartridge. It is made by the Remington Arms Co., at Ilion, N. Y.

The Merwin, Hulbert & Co.'s Automatic revolver is manufactured at Norwich, Conn. The mechanism of this arm is entirely different from any other make of American revolvers. It is well constructed, the parts being made with great care and with a nicety of fitting which is highly creditable to the manufacturers. The material from which they are constructed is forged steel.

The mode of operating the arm is as follows: —

TO LOAD. — Place the hammer at half cock, press the loading gate downward, and insert the cartridges.

TO EJECT THE SHELLS. — Take the revolver in the right hand, place the left hand on the barrel with the thumb on the button under the frame, push the button toward the guard, turn the barrel outward, and draw forward, when the shells will fall out.

TO TAKE THE ARM APART. — When the barrel and cylinder are drawn forward, as above described, press the

barrel catch down and draw forward. No screwdriver is needed to take the arm apart or interchange the barrels.

There are a number of different models manufactured with and without the folding hammer in .32, .38, and .44

Fig. 59.— Mr. George R. Russell, Revolver and Pistol Shot. Boston, Mass.

calibers, with barrels from three inches to 5½ inches in length, and five and seven chambers in the cylinders. The .38 and .44 calibers are also manufactured with the regular hammer.

This firm also makes a solid frame revolver of cheap grade.

In inspecting the revolvers of this make, there will be found a number which are not adapted to fine shooting, but would be classed as short-range weapons of defense,

or pocket revolvers. Those with the $3\frac{1}{2}$-inch barrels would never be selected by the person desiring accuracy at any distance beyond a few yards; but the .32 and .38 calibers, with a $5\frac{1}{2}$-inch barrel, are considered by many as fine shooting weapons.

It is evident that the action of the Merwin, Hulbert &

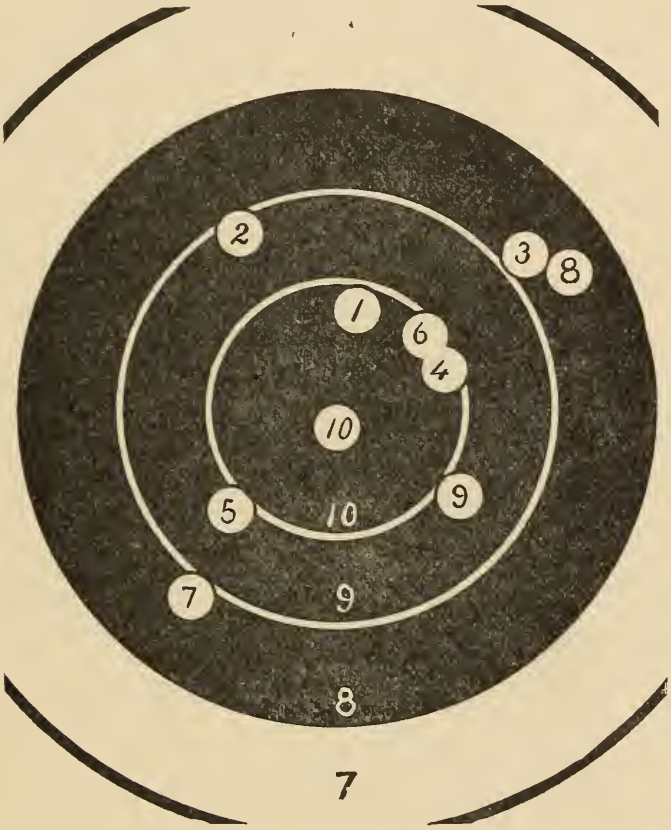

Fig. 60.— Score of ninety-five out of a possible 100, on Standard American target, shot by Mr. George R. Russell, with a Stevens pistol, at twenty yards. (Full size.)

Co. revolver possesses as much strength as most of the revolver actions on the market. It permits of being taken apart with ease and despatch, which enables the user to clean the barrel and cylinder in the most thorough manner.

After cleaning, the arm can be quickly assembled; more

so, it is thought, than any other American revolver. It can be loaded very quickly by pressing the button under the frame toward the guard, turning the barrel outward, and drawing forward, when the shells fall out; fresh cartridges are then inserted. The rapidity of operation of this arm can hardly be credited until one witnesses the revolver manipulated by a person familiar with its operation.

A very noticeable point about this weapon is the ability

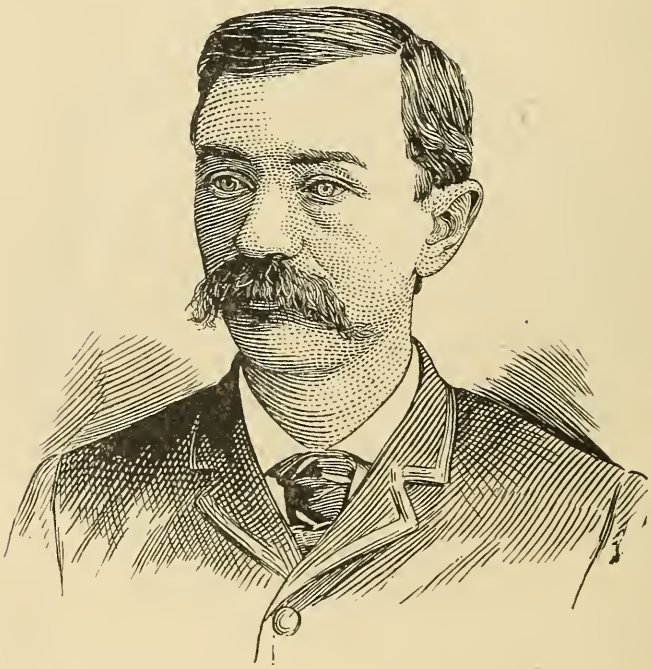

Fig. 61.— Mr. W. T. Whiteford. Amateur Pistol Shot. Barnard, Mo.

to combine a target revolver with a pocket revolver, as with a number of the models two barrels are supplied: one 5½-inch, and the other three or 3½ inch barrel.

The .32 and .38 caliber revolvers with 5½-inch barrels and folding hammer are nicely balanced arms, and when properly sighted are capable of doing fine work; but, unfortunately, they are double-action, and while this feature

may be a desirable point in revolvers for defense, for target practice or fine shooting it is a detriment rather than an advantage. But this firm also makes a single-action with a regular hammer in .38 caliber, in which the trigger pull can be brought to a state of smoothness and fineness, which, if the arm is handled by a good shot, will show excellent work.

The Army revolver is made in single and double-action,

Fig. 62.— Fifty consecutive shots, at fifty yards, by Mr. F. E. Bennett. Stevens pistol, .22 caliber long-rifle cartridge. ¼ original size.

with and without the folding hammer. Most of the army models are chambered to take the Winchester rifle cartridge, .44 caliber, holding forty grains of powder and 200 grains of lead.

The Merwin, Hulbert & Co.'s revolver has been thoroughly tested by the Government Ordnance Board, which

reports as follows on its tests of a six-shot, .42 caliber, seven-inch barrel revolver, weight two pounds 11½ ounces, using a charge of twenty-three grains of powder and a 252-grain bullet.

On the whole, the board regarded it as a very good pistol, it having endured the tests in a fairly satisfactory manner.

Revolvers are classed at the present time as follows: —

Military revolvers, being fitted with a plain, open sight, strong enough to stand the rough usage to which the arm would naturally be subjected; of suitable power to kill readily and shooting fixed ammunition which can be carried in the belt or proper receptacle. The second is the target revolver, which may be of the same pattern as the military revolver, but fitted with fine sights, which are generally too delicate for rough military work; a lateral wind gauge on the rear sight and an arrangement for securing elevations is also permitted on such revolvers.

The ammunition for these weapons is according to the choice of the marksman, frequently being loaded with only a light charge, thus doing away with the unpleasant recoil, and lessening the liability of excessive fouling when firing. The third is the pocket revolver, which clubs indulging in shooting with this weapon, class as revolvers of not less than .32 caliber, with barrels of four inches and under.

CHAPTER VI.

TEST OF MILITARY REVOLVERS BY THE UNITED STATES ORDNANCE BOARD.

In a previous chapter I referred to the action of the United States Government in adopting a .38 caliber revolver for the Army and Navy. Prior to adopting the Colt revolver, a test was made of a Smith & Wesson .38 caliber of the hammerless pattern, and a Colt double-action revolver of the same caliber, at the United States Armory, at Springfield, Mass. The board made the following official report: —

The board appointed to conduct these tests met the first time on April 15. By the report it will be seen that the nomenclature of component parts of the Smith & Wesson revolver are as follows:—

1. Barrel.
2. Cylinder.
3. Frame.
4. Stop.
5. Barrel catch.
6. Safety lever.
7. Guard.
8. Side plate.
9. Base pin.
10. Barrel catch lifter.
11. Cylinder hook.
12. Extractor post.
13. Extractor.
14. Trigger.
15. Hammer.
16. Stock screw.
17. Strain screw.
18. Short plate screw.
19. Joint pivot and screw.
20. Hammer stud.
21. Firing pin bushing.
22. Firing pin.
23. Extractor stud.
24. Right-hand stock.
25. Left-hand stock.
26. Extractor cam and latch.
27. Sight.
28. Split spring.
29. Hand spring.
30. Barrel catch spring.
31. Firing pin spring.
32. Cylinder hook spring.
33. Cylinder stop spring.
34. Latch spring.
35. Hand.
36. Stirrup.

37. Front sear.
38. Extractor spring.
39. Main spring.
40. Nut.
41. Trigger spring.
42. Barrel catch lifter spring.
43. Safety latch.

Also the following pins:—

44. Cylinder stop spring pin.
45. Latch spring pin.
46. Safety lever pin.
47. Cylinder hook pin.
48. Barrel catch pin.
49. Firing pin bushing pin.
50. Barrel catch lifter pin.
51. Stop pin.
52. Latch pin.
53. Trigger pin.

The dimensions of the arm are:—

Total length, 9.23 inches.
Length of barrel, 5 inches.
Diameter of bore, .35 inch.
Number of grooves, 5.
Kind of grooves, circle of about .36 inch.
Depth of grooves, .005 inch.
Grooves, depth, uniform or not? Uniform.
Grooves, twist of, one turn in 18.56 inches.
Grooves, twist, right-handed.
Grooves, twist, uniform.
Number of chambers, 5.
Diameter of chambers, .388 inch.
Length of cylinder, 1.215 inches.
Diameter of cylinder, 1.30 inches.
Total weight, 1 pound, 1690 grains; 1.24142 pounds.
Weight of powder charge, 15 grains.
Weight of bullet, 146 grains.

The nomenclature and dimensions of the Colt revolver are as follows: —

1. Frame cap.
2. Cap screws (2).
3. Frame.
4. Recoil bouching.
5. Cylinder.
6. Ejector and ratchet.
7. Ejector rod.
8. Ejector rod head.
9. Ejector spring.
10. Crane.
11. Crane nut.
12. Crane lock.
13. Crane lock screw.
14. Barrel and sight.
15. Latch.
16. Latch spring.

17. Latch pin.
18. Half stocks (2).
19. Escutcheons (2).
20. Stock screws (2).
21. Stock pin.
22. Hand.
23. Hand spring.
24. Trigger.
25. Trigger pin.
26. Trigger rebound pin.
27. Rebound spring.
28. Rebound lever.
29. Rebound spring pin.
30. Rebound lever pin.
31. Hammer.
32. Hammer strut.
33. Hammer strut spring.
34. Hammer strut spring pin.
35. Hammer pin.
36. Hammer stirrup.
37. Hammer stirrup pin.
38. Main spring.
39. Strain screw.

Total length, 11.30 inches.
Length of barrel, 5.96 inches.
Diameter of bore, .362 inch.
Grooves, number of, 6.
Grooves, kind of, circle of about .58 inch.
Grooves, depth of, .005 inch.
Grooves, depth, uniform or not? Uniform.
Grooves, twist, right-handed or left-handed? Left-handed.
Grooves, twist, uniform, increasing or decreasing? Uniform, one turn in 16.02 inches.
Chambers, number of, 6.
Cylinder, diameter of, 1.45 inches.
Total weight, 2 pounds, 112 grains.
Weight of powder charge, 18 grains.
Weight of bullet, 150 grains.

The report of the regular tests, as given by the Report of the Chief of Ordnance, is as follows: —

I. — *Dismounting and Assembling.*

(1) Find the time required by an ordinary machinist to dismount each revolver.

(2) Find the time required for the same machinist to completely assemble the parts of each revolver.

Every part must be dismounted and assembled, no matter how small.

The dismounting and assembling was performed by Mr. R. T. Hare.

It was found necessary to send to the manufacturers for special drifts and other appliances for dismounting the Smith & Wesson revolver; and only after repeated attempts, and instruction by an expert furnished by Smith & Wesson, was Mr. Hare able to

Fig. 63. — Mr. John L. Fowle, Woburn, Mass. Amateur Revolver and Pistol Shot.

mount and dismount the revolver with any degree of facility. The large number of parts, the nicety of fit, and the knack required in portions of the assembling, would make it impossible, the board thinks, for an ordinary mechanic to perform this test without injuring the revolver.

The Colt revolver was dismounted and assembled by Mr. Hare without much difficulty.

The time taken was as follows: —

To Dismount.		To Mount.	
Smith & Wesson.	Minutes.	Smith & Wesson.	Minutes.
By expert	6	By expert	$6\frac{3}{4}$
By Mr. Hare . . .	$14\frac{1}{2}$	By Mr. Hare . . .	$39\frac{3}{4}$
Colt, by Mr. Hare . .	5	Colt, by Mr. Hare . .	$7\frac{3}{4}$

II.— *Initial Velocities.*

(1) Take the mean of the initial velocities determined by firing ten rounds, Le Boulengé chronograph used.

(2) Break up ten cartridges and weigh the charges of powder and of lead in each, separately.

Take the means of the weights of the powder and of the lead for the charge, which gives the mean initial velocity. Do this for each kind of cartridge used.

Smith & Wesson revolver, mean of charges of powder and lead obtained by breaking up ten cartridges: weight of powder, 14.125 grains; weight of bullet, 146.30 grains; length of barrel, 5.″0.

Colt revolver, mean of charges of powder and lead obtained by breaking up ten cartridges: weight of powder, 17.85 grains; weight of bullet, 150 grains; length of barrel, 5″.96.

Velocities at 25 feet from muzzle.— Smith & Wesson revolver: 607.2, 624.6, 637.4, 645.1, 664.8, 618.1, 661.6, 645.9, 607.5, 613.5, mean 635.5 feet; mean variation, 18.29 feet.

Colt revolver: 699, 729, 709, 738, 718, 733, 700, 743, 728, 730; mean 722.7 feet; mean variation, 12.96 feet.

III.— *Penetration and Recoil.*

Find the penetration and recoil by means of the pendulum recoil frames. As no suitable pendulum recoil frames were available, the board decided to omit this test. The theoretical recoil for the revolvers computed by means of the formula $\phi = \frac{v^2 w}{2gW}$ (page 112, Report Chief of Ordnance, 1878) is as follows: Smith & Wesson, 2.1889 foot pounds; Colt, 1.8516 foot pounds. The theoretical recoil for the Colt service .45 caliber is 3.89 foot pounds.

IV. — *Tests for Accuracy.*

(1) Fire ten rounds from a fixed rest at a target distant twenty-five yards.

(2) Fire ten rounds from a fixed rest at a target distant 100 yards.

(3) Find the mean absolute deviation in each case.

The revolvers were operated by Mr. R. T. Hare.

RANGE, TWENTY-FIVE YARDS.

Revolver.	Mean horizontal deviation.	Mean vertical deviation.	Radius circle of shots.	Radius 50 per cent of shots.	Radius 100 per cent of shots.
	Inches.	Inches.	Inches.	Inches.	Inches.
Smith & Wesson.....	.78	.68	1.18	.86	2.44
Colt.....	1.37	.78	1.68	1.28	2.52

RANGE, 100 YARDS.

Smith & Wesson.....	2.56	3.60	4.91	3.84	7.50
Colt.....	4.88	8.	10.11	7.76	23.90

In these tests, two bullets from the Colt revolver keyholed badly.

V. — *Penetration in Pine Butts.*

Fire five rounds into pine butts distant 100 yards, and take a mean of the five penetrations.

Mean of Five Penetrations.

Smith & Wesson revolver, $3\frac{1}{4}$ inches; Colt revolver, $3\frac{3}{4}$ inches.

VI. — *Rapidity of Loading, Firing, and Ejecting.*

(Revolvers operated by Mr. R. T. Hare.)

Find the time required to fire eighteen rounds, commencing and ending with the chambers empty.

Smith & Wesson revolver, 0 minutes $52\frac{1}{2}$ seconds.

Colt revolver, one minute thirteen seconds.

Twenty rounds were fired from the Smith & Wesson revolver in fifty-four seconds.

VII. — *Endurance.*

Fire 250 rounds, allowing the revolver five minutes to cool after every fifty rounds. (Revolvers operated by Mr. R. T. Hare.)

Colt Revolver. — Early in the test the rebound spring proved too weak always to turn the trigger forward after the discharge

Fig. 64. — Lieut. Sumner Paine, Boston. Amateur Pistol and Revolver Shot.

of the revolver. In a large number of cases the trigger had to be pushed forward by the fingers. Otherwise revolver worked well.

Smith & Wesson Revolver. — On the 104th round, the hand would not revolve the cylinder, the mechanism being clogged with fouling. The cylinder was slipped off and wiped and re-

placed, when the revolver worked perfectly. The same difficulty occurred on the 140th round. The cylinder was removed as before, and the clogged parts more carefully wiped than in the preceding instance, when the revolver worked well during the remainder of the test.

VIII. — *Fouling.*

Let the revolver remain forty-eight hours without cleaning; after which fire fifty rounds, allowing it five minutes to cool after the twelfth, twenty-fourth, and thirty-sixth rounds.

Smith & Wesson Revolver. — Cylinder clogged as in preceding test, and would not revolve. It was slipped off as before and wiped off, as was the rear of barrel. During the remainder of the test the revolver worked well.

Colt Revolver. — The rebound spring would not turn the trigger forward during the opening rounds of each series. One failure of the cylinder to revolve occurred. The revolver was opened and shut again by the operator, when the cylinder revolved freely.

IX. — *Dust.*

(1) The revolver to be carefully cleaned and then shaken in fine dust, after which it is brushed off with the hand and fired twelve rounds.

(2) Dust again in the same manner, in order to ascertain the combined effects of dusting and fouling; then fire six rounds.

Smith & Wesson revolver. —(1) In two instances it was necessary to give an extra pull to the trigger to make the cylinder revolve.

(2) The revolver worked well.

Colt revolver.— (1) At the sixth round the revolver refused to work as a double-action revolver, and it was necessary to cock the hammer by hand.

(2) Revolver still disabled as a double-action revolver, but could be worked by cocking hammer with hand. In several instances the cylinder would not revolve without considerable assistance.

X. — *Rust.*

(1) After cleaning, remove all oil and immerse in a solution of sal-ammoniac for ten minutes, and expose for forty-eight hours.

(2) Fire twelve rounds.

(3) Without cleaning, load the revolver and immerse for ten minutes as before, and again expose for forty-eight hours.

(4) Fire eighteen rounds.

(5) Dismount, examine, and clean.

Both revolvers were boiled in a solution of potash to remove oil, and left over night to dry. They were then rusted as above.

Fig. 65.— Mr. Benjamin Dimock, Haverhill, Mass. Amateur Pistol Shot.

Smith & Wesson revolver. — On taking the revolver out of the solution, the mainspring was found to be broken. The revolver was well rusted. Considerable rapping with a mallet was necessary to make the barrel catch and cylinder hook operate, and the

safety lever would not perform its functions until after some amount of manipulation. The mainspring was replaced by another one, and twelve rounds were fired from the revolver without difficulty.

Colt revolver. — The revolver was found to be well rusted, but the mechanism operated freely, and the twelve shots were fired without the use of the mallet being necessary. The cylinder had to be assisted to revolve once, and the rebound spring failed to push the trigger forward three times.

The revolvers were not loaded before the next immersion, on account of the danger involved, and instead of plugging the chambers with corks as before, empty cartridge shells were inserted. Both revolvers were thoroughly rusted when taken out of the solution.

Smith & Wesson revolver. — The barrel catch was tightly cemented, and opened only after long-continued efforts. The hammer would not operate, and on taking off the side plate and a half stock, the mainspring (a new one, replacing the one broken in the first part of the test) was found to be broken. It was replaced by a new one. The firing-pin spring and pin were tightly rusted, so that the spring would not operate to return the pin. The hand would not revolve the cylinder, and on further inspection it was found that the trigger spring was broken.

More than an hour and a half was consumed in trying to operate this revolver. As much of the rust as possible was rubbed off with rags, and water was used upon it freely, but all efforts proving fruitless, the revolver was laid aside as disabled.

Colt revolver. — The cylinder could not be swung outwards without aid from the blows of a mallet. Cartridges could not be inserted until the chambers were cleaned from rust. Eighteen rounds were fired without much difficulty, using the revolver as a double-action revolver. The rebound spring failed to push the trigger forward in every case, and had to be assisted by the operator's hand. In two cases (ninth and tenth rounds) the hand would not revolve the cylinder without assistance.

Both revolvers were then dismounted, examined, thoroughly cleaned, and assembled.

REMARKS.

Smith & Wesson Revolver.

Captain Hall, in his letter, twice speaks of this revolver as having a six-inch barrel. The manufacturers state that a five-

Fig. 66. — Major Charles W. Hinman. Revolver and Pistol Expert.

model. The multiplicity of parts and their nicety of fit make it almost impossible for any one, not a skilled and instructed inch barrel is the longest that has ever been supplied with this mechanic, to dismount and assemble the arm and replace broken parts, without marring or impairing the arm.

On the other hand, the locating the hammer and lock mechanism entirely within the frame, renders the arm less liable to accidental injuries, and prevents the parts from clogging from dust and rust. The cylinder is easily removed and replaced, and the parts where fouling accumulates are easily accessible. The revolver stood all the tests very well, up to the last rust test; and with the most ordinary care a revolver could be prevented from becoming rusted to such an extent. In this test, however, the arm was totally disabled. Two mainsprings were broken in this test, which would seem to imply that their temper was too high.

Great stress has always been laid upon certain defects in the Smith & Wesson system which would develop especially in a military arm. A revolver board, convened in 1876, speaks of the system thus: "The efficiency of any revolver of this model must depend in great measure upon the accuracy with which its joints are made and broken. Certain distances must not only be made exact, but must remain invariable, and it is believed impossible to preserve the latter condition with the rough usage of the service." The Smith & Wesson revolver tested by this board failed in the rust test, and the report goes on to say: "The severe rusting test, given by the board, resulted in showing how readily this model may become unserviceable, and this test is not regarded as a more severe trial of the arm than would frequently be experienced in the service."

Captain Hall makes the following special claims for the arm:—

(1) A revolver cocked with the forefinger has a great advantage over one cocked with the thumb. In cocking a revolver with the thumb, its position in the hand is rendered very insecure at the instant the thumb is changed from the hammer to the stock, and this insecurity is so increased in cold weather as to render a premature discharge probable, and greatly diminish the rapidity and accuracy of fire.

The board thinks that these points seem to be well taken, and certainly Captain Hall's reputation as an expert pistol shot should give his opinion great weight. This claim will apply equally well to the Colt, as it is a double-action revolver.

(2) The Smith & Wesson revolver under discussion has an advantage over all other revolvers cocked with the forefinger, in the fact that there is an indication in the pull which informs the shooter when the cartridge is to be struck. This new and novel

device renders this revolver equal, if not superior, to all others, even as a target pistol.

The board concurs with Captain Hall in thinking that this indication in the pull is a decided advantage.

Fig. 67. — Sergt. J. J. Mountjoy, Philadelphia, Penn. Amateur Pistol Shot.

(3) The revolver has also a safety device in the stock which prevents it from being fired unless the handle is grasped.

The board recognizes the advantage of the safety device, but thinks that by its use accidents will only be partially avoided. A great number of premature discharges take place when the handle of the revolver is grasped by the soldier.

The workmanship of the revolver leaves nothing to be desired, and the accuracy of shooting is most satisfactory. Whether it will stand the rough usage of the service, is another question, and

in this connection Captain Hall states he has had two of these arms for more than a year, "fired 2,000 or 3,000 rounds from them, and snapped them over 5,000 times, without either getting out of repair a single time, and has carried them on his saddle in the field for two months of the time." The cartridges used worked well in every respect, and have the great advantage of having the lubricant covered by the cartridge shell instead of being placed on the exposed portion of the bullet.

Colt Revolver.

This revolver has the great advantage of possessing a solid frame, and this is combined with the feature of simultaneous ejection of cartridges, though the ejection is not automatic, as in the Smith & Wesson. The principal defect developed in this arm was the weakness of the rebound spring, which in many cases would not turn the trigger forward after the discharge of the revolver. The substitution of a stronger spring or the addition of a strain screw would remedy this defect. Several failures of the hand to revolve the cylinder were noted, and on dismounting the revolver a large amount of dirt and fouling was found in one case between the hand and hand spring.

This revolver does not possess the safety device of the Smith & Wesson, and is thereby more liable to accidental discharges when the handle is not grasped in the hand. It lacks the hammerless feature of the Smith & Wesson, but in spite of the hammer not being located entirely within the frame, it showed a decided superiority in the rust test. Moreover, having a hammer, it can be used as a single-action revolver when its double-acting mechanism is disabled, as shown in the "dust test," and the board thinks this a decided advantage. There are no very delicate parts, and suitable provisions are made against accidents. The cylinder cannot be swung outwards unless the hammer is at safety, and the trigger and hammer are locked unless the cylinder is in the proper position for firing. The hand holds the cylinder after it has reached its position for firing until the arm is discharged, thus acting as a stop bolt and preventing carrying by. In accuracy the revolver showed itself inferior to the Smith & Wesson, and two of the bullets fired keyholed, one at twenty-five yards' distance.

The ammunition used, the board considers to be greatly inferior

to that used in the Smith & Wesson revolver. The outside lubrication used on the bullets was productive of much fouling, and there was great difficulty at times in forcing the cartridges into the chambers. The board very much prefers a cartridge where the lubricant is covered by the case.

CONCLUSIONS.

The board would state that the Smith & Wesson revolver has passed all the tests satisfactorily except the rust test, in which it was totally disabled. The Colt revolver has passed all the tests satisfactorily except the dust test, in which it was disabled as a double-action revolver, but could be worked satisfactorily by cocking the hammer as in a single-action revolver. Whether these arms have the necessary stopping power, the board has no means of determining. The board is of the opinion that the issue of a limited number of each of these arms would be advantageous, as affording a comparison between the double-acting system and the single-action system in use in the service. Each of the revolvers possesses advantages peculiar to itself, and a competitive test in service would be necessary to determine definitely which is the superior.

NATIONAL ARMORY,
SPRINGFIELD, Mass., June 22, 1889.

The board met at the call of the president at 10 A. M. Present, both the members. The double-action .38 caliber, navy revolver, previously tested and reported upon by the board, was resubmitted by the Colt's Patent Firearms Manufacturing Company, with a request that it be tested for accuracy with the new .38 caliber long Colt's central-fire cartridges, manufactured by the Union Metallic Cartridge Company, Bridgeport, Conn., the lubricant being placed in cannelures covered by the cartridge shell; 150 of these cartridges were furnished with the revolver. A stronger rebound spring had been substituted for the one previously used in the revolver, as recommended by the board; this was the only alteration made. The revolver was subjected to the usual test for accuracy, as follows:—

Accuracy.

(1) Fire ten rounds from a fixed rest at a target distant twenty-five yards.

(2) Fire ten rounds from a fixed rest at a target distant 100 yards.

(3) Find the mean absolute deviation in each case.

The revolvers were operated by Mr. R. T. Hare, and two targets of ten shots each were taken at each range. The targets compared as follows with those made in the previous test, when cartridges with outside lubrication were used.

RANGE, 25 YARDS.

[18 grains powder, 150-grain bullet in both tests.]

	Mean horizontal deviation.	Mean vertical deviation.	Radius circle of shots.	Radius 50 per cent of shots.	Radius 100 per cent of shots.
	Inches.	Inches.	Inches.	Inches.	Inches.
May 2. Cartridges with outside lubrication	1.37	.78	1.68	1.28	2.52
June 22. Cartridges with inside lubrication					
1st target	.80	.948	1.41	1.40	2.96
2d target	.95	.98	1.46	1.13	3.04

RANGE, 100 YARDS.

May 2. Cartridges with outside lubrication	4.88	8	10.11	7.76	23.90
June 22. Cartridges with inside lubrication	3.68	2.14	4.46	3.58	8.50
1st target	2.80	3.29	4.71	3.44	7.60
2d target					

During the test the revolver worked well in every particular, and no keyholing of bullets was observed. The substitution of a stronger rebound spring did not seem to appreciably increase the trigger pull. By an inspection of the targets made, it appears that the accuracy at twenty-five yards is about the same as in the previous test. The accuracy at 100 yards, however, shows a decided improvement, and this though the conditions of firing were rather unfavorable, a fresh breeze blowing during the practice.

CHAPTER VII.

TARGET REVOLVERS.

THERE is no difference between the military and the target revolver, excepting the sights and the trigger pull. The target revolver generally shoots the same ammunition; but by the fine sights at the muzzle end, a wind gauge at the breech, and a smooth, light trigger pull, the marksman is greatly aided in doing fine shooting.

Nearly all revolvers and pistols have sights affixed to the barrels, which are very properly supposed by purchasers to aid them in hitting the object at which they shoot. In many cases the sights on pistols and revolvers are very little, if any, aid to the shooter. Persons unfamiliar with these firearms, when they test a new pistol or revolver, generally commence by aiming at the object desired to hit; and if their holding is good, they are likely to find the shots grouped quite a distance above the object aimed at. The heavier the charge and lighter the arm, the greater the flip or kick-up. The shooter, when he observes this result, generally corrects the fault by holding under the object, and some wonderfully good shooting has been done by aiming eighteen or twenty inches under the target or bullseye. Good shooting under the above conditions however, is generally at known distance with some guide below the bullseye to enable the marksmen to gauge the amount of allowance regularly.

When Chevalier Ira Paine gave his first exhibition of revolver shooting at fifty yards, at the range of the Massachusetts Rifle Association, he fired a few sighting shots before commencing his 100 shots, and found that his elegant .44 caliber Russian model Smith & Wesson re-

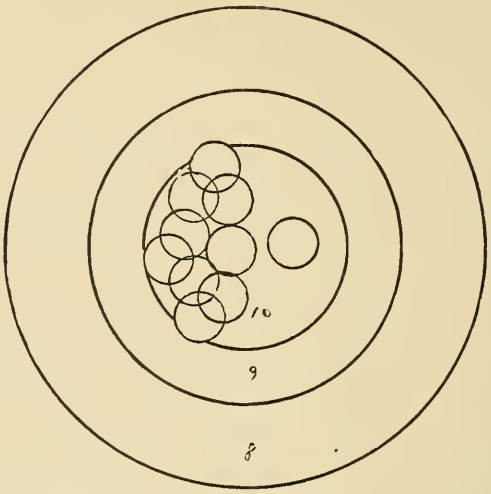

Fig. 68. — Ten shots at 12½ yards with .22 caliber Gould model Stevens pistol, by Mr. W. E. Carlin, New York.

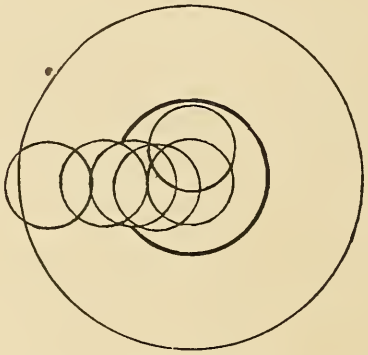

Fig. 69. — Six shots at twelve yards with .44 caliber Smith & Wesson revolver, round bullet, by Mr. W. E. Carlin, New York.

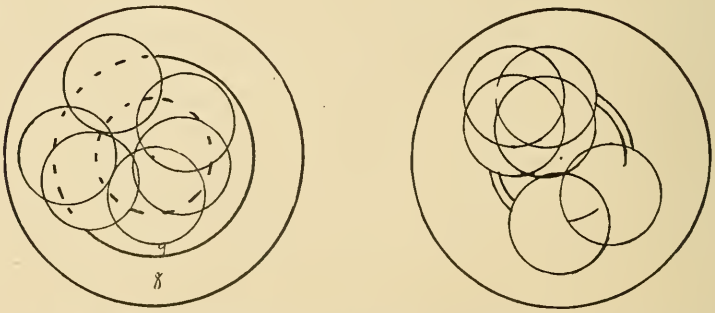

Fig. 70.— Two scores of six shots each, at twelve yards, with .44 caliber Smith & Wesson revolver, by Mr. W. E. Carlin, New York.

volver, which was perfectly sighted for about twelve yards, when using the light loads and round ball, with the heavy,

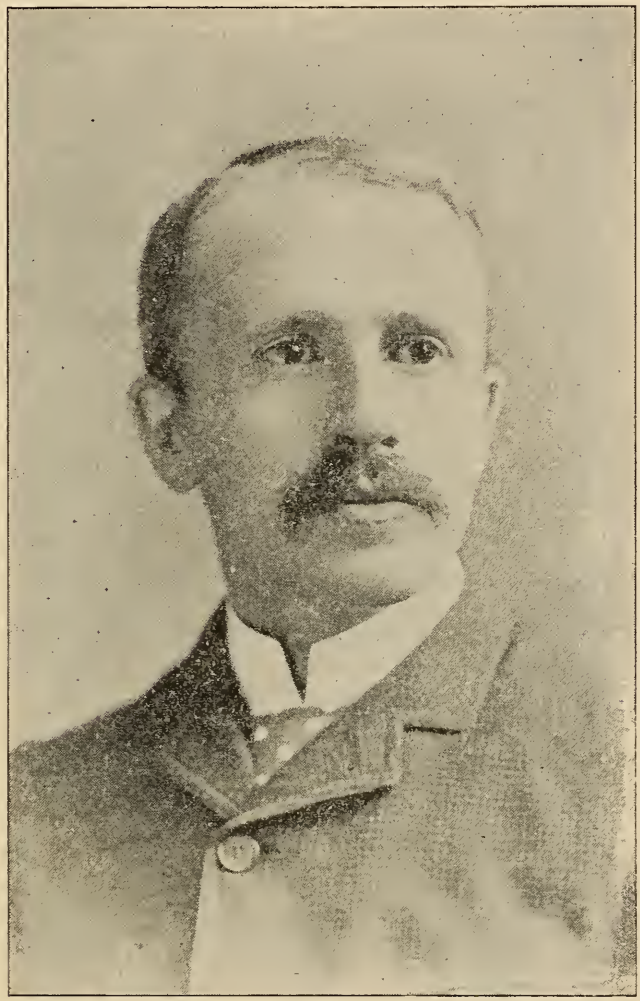

Fig. 71. — Mr. E. E. Patridge. Winner of Boston Athletic Revolver and Pistol Championship, 1892.

or full charge, shot eighteen inches over the bullseye. He asked permission to place a spot some distance below the bullseye, which was given; but as he had only a

few sighting shots to judge the difference in the elevation between the two cartridges, he did not score what he proved he was capable of doing at a second exhibition. In his second trial he used the same revolver but with a different sight, which enabled him to aim directly at the bullseye.

I have witnessed considerable revolver shooting, and not a little in a section of this country where the arm was carried for protection. After many practice shoots I have heard shooters remark, "Any one of these shots would have hit a man"; thus the writer formed the impression that many persons who carry revolvers are content with an arm which, when fired, would hit the size of a man. On the supposition that this is the case, it is not strange that so little has been done until recently to improve the accuracy of the revolver by correctly sighting it. The sights which are attached to some revolvers shoot over from six to thirty inches when fired from twenty to sixty yards. If the charge is much reduced the sights which come on the revolver can be used in aiming directly at the object desired to hit; but with a full, heavy charge the over-shooting mentioned is experienced.

The accompanying illustrations show, approximately, the difference required in shooting a Smith & Wesson Russian model .44 caliber revolver with a light and a heavy charge.

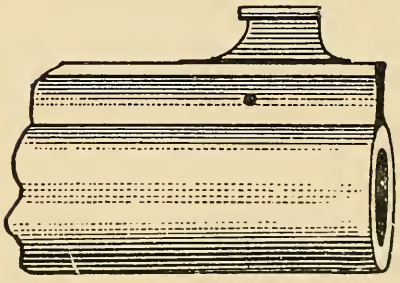

Fig. 72.

Fig. 72 shows the target sight which is attached to this revolver when purchased. If a sight of this height is used with the full charge at fifty yards, and a sight taken on the bullseye at six o'clock, if held properly, the

bullet will strike about eighteen inches over the bullseye. The same result will be experienced with the plain, open sight which comes on this favorite arm, as well as with most of the other revolvers of American make of large caliber. If, however, the shooter desires to use a light charge of ten to fifteen grains of powder, he will find this sight approximately correct in regard to height. As many of the finest shots prefer to use the full charge, desiring to practice with a practical charge, such as they would use in warfare or defense, and knowing that, if properly held, it will give fine results, they procure another sight, similar in shape, but higher, as shown in Fig. 73. This additional height depresses the muzzle of the barrel, and counteracts the flip or kick-up, and the shooter can sight directly at the bullseye at a distance of fifty yards.

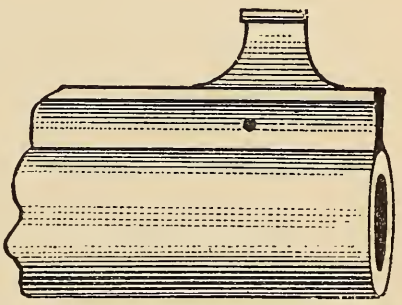

Fig. 73.

The front sight most favored by expert shots at the present time for target shooting, is shown in Figs. 72 and 73, and the rear sight as shown in Fig. 74. The latter has a semicircular notch to draw the top of the front sight into. This style of sight was adopted by Messrs. Smith & Wesson, it giving the effect of a pin-head sight. Some good shots prefer a fine, plain front sight, with a square top, and some use a straight bar without a notch, but a platinum line in the center for a rear sight.

Fig. 74.

There is an ivory bead front sight adapted to revolvers made by Mr. William Lyman, of Middlefield, Conn., which is highly commended by those who have used it,

this sight being especially recommended for hunting pistols. It is shown in accompanying illustration.

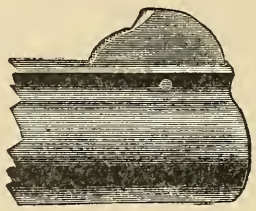

Fig. 75. — Lyman Ivory Tipped Front Sight for pistols or revolvers.

An improvement in the rear sight is made by dovetailing a lateral sliding bar across the barrel clutch of the Smith & Wesson revolvers, which makes an effective wind gauge. Those desiring to test the accuracy of revolvers at a rest can do so very effectually by attaching to the rear sight a piece of thin metal, to convert the semicircle notch into a round aperture, which with a temporary aperture front sight, or the pin head sight, enables the tester to obtain a clear sight, which is quite difficult when shooting in this manner at rest with open front and rear sights, which are so near together.

The sights I have here described are only fit for fine target shooting; they would not be suitable for a military or even a pocket revolver. For such arms, plain, solid sights are recommended, such as are not likely to interfere in drawing pistol or revolver from a holster or a pocket.

There are several ways of taking sight with a pistol or a revolver. It is believed that a majority of the best shots draw a very fine bead on the front-sight, and touch the object aimed at, at the lower part of the bullseye at six o'clock. Other good shots prefer to place the sight on the object, or on the bullseye, while still others place the sight over the object or the bullseye, and see the

tip at twelve o'clock. It is believed that those who sight at the lower or bottom of the object aimed at,

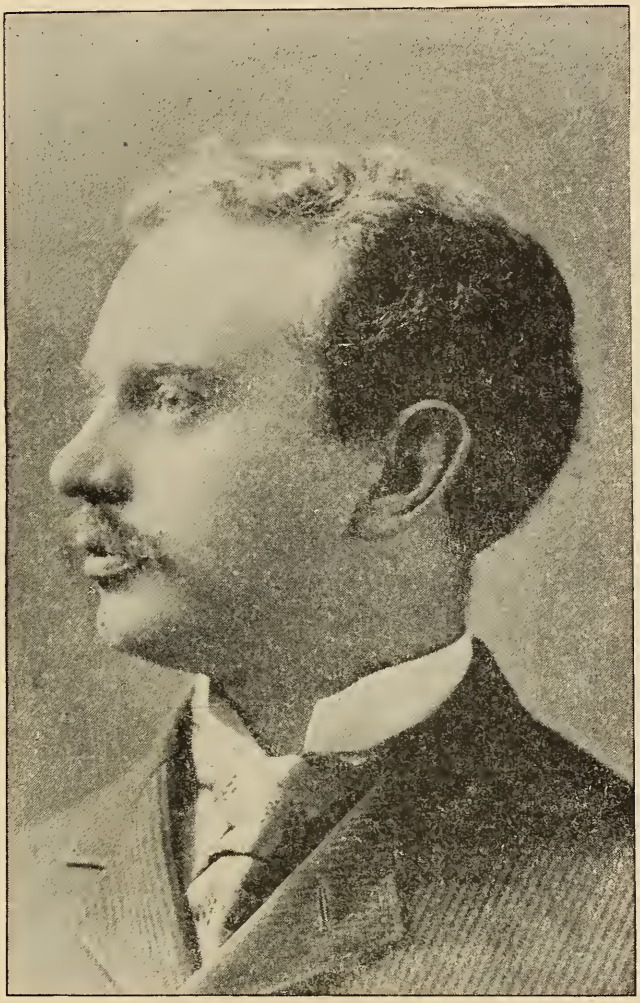

Fig. 76. — Dr. Louis Bell. Amateur Revolver and Pistol Shot. First winner of Winans' trophy with revolver. New York, 1892.

possess more advantages ; but the shooter should try the several ways, and, as soon as satisfied of his preference, adhere firmly to one manner of sighting, if permissible. It will be found that different makes and lots of ammu-

Fig. 77. — Ten shots at fifty yards by Mr. H. S. Harris. Shot at Walnut Hill, Mass, Dec. 31, 1890, with a Stevens Pistol, Diamond model with a ten-inch .22 caliber barrel. Ammunition, U. M. C. Co.'s long-rifle.

Fig. 78. — Ten shots at fifty yards by Mr. H. S. Harris. Shot at Walnut Hill, Mass., Jan. 6, 1894, with a Stevens Diamond Model Pistol with a ten-inch barrel and U. M. C. Co. .22 caliber, long-rifle cartridges.

Two of the best known ten shot scores at fifty yards with pistol on Standard American target. Targets reduced to one quarter original size.

nition vary considerably, affecting elevations; different weather conditions also affect elevations. This will be

Fig. 79. — Position adopted in Pistol Firing by Mr. Henry S. Harris, Pistol Champion of Massachusetts, 1893.

perceived with a few shots, and the error corrected by taking a finer or coarser sight.

There is also made by Messrs. Smith & Wesson a rear elevating and wind gauge sight for pistols and revolvers, which is a great improvement over any heretofore placed on the market. It seems to be a difficult thing to perfect a revolver sight, as several firms who have been endeavoring to accomplish it for some time past know. With heavy charges it is desirable to depress the barrel or lower the elevation, rather than raise; while with light charges, as you increase your distance, you are obliged to raise your rear sight. A very high front sight, which is necessary for the large charges, is considered unsymmetrical by manufacturers; and until some ingenious person devises a means of raising and lowering the front sight of a revolver, the person who desires to shoot several kinds of ammunition accurately in one revolver, and at various distances, must carry about with him several front sights of various heights which will interchange.

CHAPTER VIII.

POCKET REVOLVERS.

A POCKET revolver, as the name implies, is a revolver possessing sufficient compactness to be carried with convenience in the pockets of one's clothing. There are but few concerns in America manufacturing large revolvers, but many produce what is classed as a pocket revolver.

For many years an impression prevailed that all revolvers were inaccurate, pocket revolvers especially so. Several years ago I undertook to prove that American marksmen could shoot revolvers about as accurately as they could some of the most famous dueling pistols of home or foreign manufacture.

I think I hazard little in claiming all I undertook to do was accomplished. At the beginning of my work there were two revolvers—the Smith and Wesson and the Colt,—which were as perfect in construction as it seemed possible to make by the highest mechanical skill, and which, in the opinion of firearm experts, possess special points of merit for special work. These two makes of revolvers, in large calibers, .44 and .45, in my opinion, are the highest types of this class of firearms in the world.

At the time I commenced my investigations, ammunition for these revolvers was much inferior to what it is at the present time. The old outside lubricated cartridges have given place largely to those of inside lubrication, and thus the even distribution of lubricant has increased the accuracy of the revolvers using them.

With the improvement in cartridges, the skill of marks-

men developed, until, at the present time, there are, in America, amateur revolver shots from Maine to California,

Fig. 80.—Fifty consecutive shots at twelve yards, by an ordinary marksman, with a Smith & Wesson .38 caliber Pocket Revolver, 3¼ inch barrel, U. M. C. Co., ammunition.

who possess skill of the highest order with revolvers of .44 and .45 caliber.

It has been shown that both revolver and ammunition of large caliber are accurate. But is the pocket revolver accurate and reliable? Many who are forced by the fine

shooting of the large revolvers to admit their accuracy, still insist that the small revolvers, — pocket revolvers, — are inaccurate, and it is impossible to do fine work with them.

I long ago gave a very thorough test to pocket revolvers, but hesitated to chronicle my results, as I hoped for an opportunity to compare others' work with my own before so doing. While gathering material for this volume I had the co-operation of a number of gentlemen interested in pistol shooting, which has enabled me to compare their views with my own, and a somewhat extended test of various pocket revolvers has furnished what seems to be instructive data for those interested in these arms.

My first object was to learn definitely what should constitute a pocket revolver. It was found that if those arms which could be carried in the pocket were reorganized as such, there would be certain arms called pocket revolvers which would give special advantages to those who competed with such arms in contests of skill. It is known to those familiar with revolver shooting that it is easier to shoot accurately a heavy revolver with a light charge and a long barrel, than with a heavy charge in a light arm and a short barrel. The first arm is the more accurate, and easier to do fine work with.

It should here be stated that a pocket revolver should be kept in the list of practical weapons. It is chiefly a weapon of defense, and proficiency with it is desirable to give greater protection to the individuals possessing it. I would like to emphasize the word practical; for as I look back and see how the uses of large caliber revolvers have been misapplied, I feel that revolver shooting to-day is, to a great extent, misrepresentation. There are many exceedingly fine shots posing before the world as expert revolver shots, who have gained their reputations wholly

by shooting tiny charges of powder and a light bullet from an arm originally made for a practical charge. Such shooting, I have often stated, in my opinion, should always be classed as pistol shooting, and revolver shooting recognized only when shot with ammunition for which the revolver is made and within a specified time.

I believe, if pocket-revolver shooting is to become popular, if there are to be contests of skill with that arm, there should be clear and explicit understanding of what constitutes such an arm. I can perceive, at this time, that this is no easy task ; and if this question is now settled it will not be likely to be adhered to, for with many the practicability of such an arm would not be considered if an advantage could be secured in a departure enabling a target shooter to make a higher score.

The most important points to determine are the maximum length of barrel, the weight of the arm, the minimum bore allowed, and the ammunition permitted.

The question of the length of barrel is an important one. It is generally known that every quarter inch of a revolver barrel, up to the length it is possible to use, is advantageous. It is therefore a question of how long can a barrel be, and the arm carried in the pocket. At a meeting of most of those who shoot pistols and revolvers in Boston and vicinity, it was unanimously the opinion that no longer barrel than four inches should be permitted; a majority favored that length of barrel as a maximum, and I recommend such. A barrel $3\frac{1}{2}$ inches in length is preferred by some, as being easier to carry in the pocket. Below $3\frac{1}{4}$ inches the loss in accuracy and the unreliability is quickly apparent.

The bore of a pocket revolver is about as important as the length of barrel. Here is where the practicability of the pocket revolver is made conspicuous. It does not

matter how large a bore is permitted, for the length of barrel and limit of weight will, to a great extent, govern that question; but it is important to establish a minimum

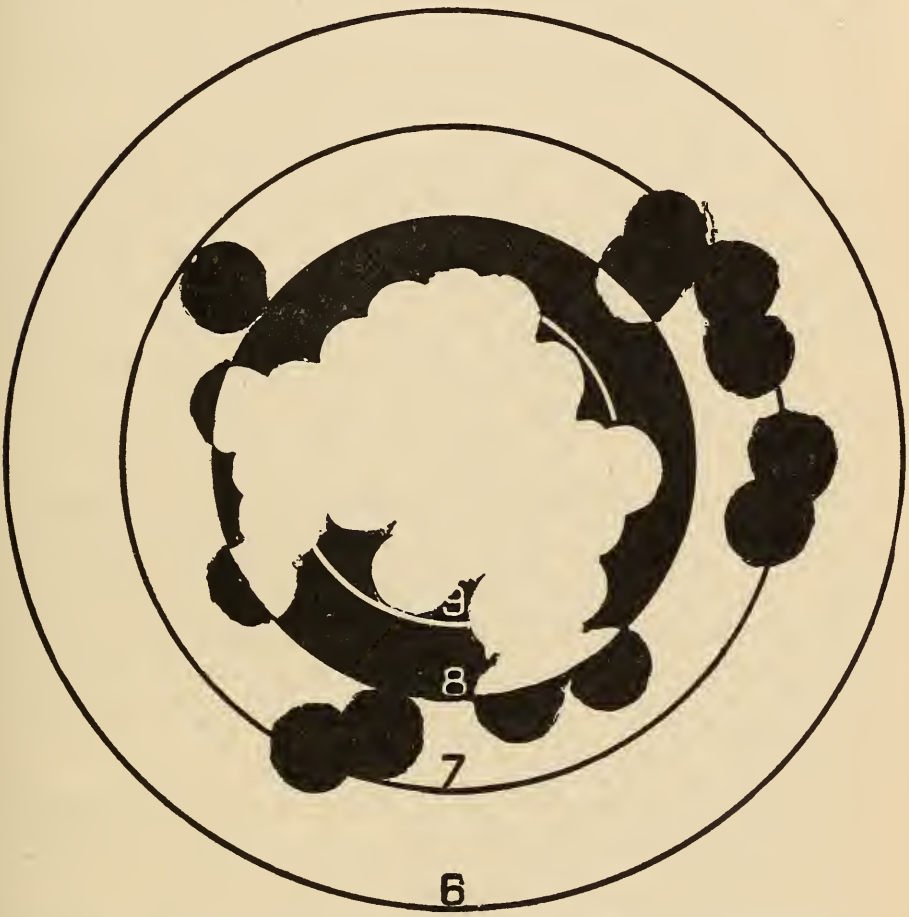

Fig. 81. — Fifty consecutive shots at twelve yards, by Mr. W. W. Bennett, with a Smith & Wesson Pocket Revolver, .38 caliber, 3¼ inch barrel, U. M. C. Co. ammunition.

of bore. Some marksmen, with an inclination to jockeying, might select a .22 caliber revolver in the heaviest frame permitted, with the maximum length of barrel, and perhaps thus gain an impractical but advantageous arm

for target practice, but a very poor weapon for defense. There are a number of pistol shooters who advocate making the minimum caliber .38, but I think a majority prefer .32 caliber.

My own opinion, on the question of calibers, is that .38 is the more practical caliber, but .32 is an arm easier to shoot, and the average person can make finer scores with the latter.

The weight of an arm must be considered; chiefly to guard against that intolerable nuisance, the shooting jockey. He might resort to the questionable practice of cutting off the barrel of a .32–.44 Smith & Wesson Russian model revolver, or even the full .44 Russian model, and use the light gallery loads, and thus have an accurate target revolver, but a very unwieldy pocket revolver.

The heaviest revolver which would properly be classed as a pocket revolver is the Colt, which weighs twenty-three ounces; this arm has a barrel 3½ inches long. I think this should be the limit of weight permitted, though some claim the weight should be extended to twenty-five ounces to permit a four-inch barrel in this make of revolver.

In regard to ammunition, I think none but factory cartridges should be permitted, for the reason that light loads are likely to be used in reloaded cartridges. Provision also should be made to prevent the use of a reduced factory cartridge. I can foresee that, if shooting with a pocket revolver becomes popular, there would be a call for gallery loads in .32 and .38 caliber; and when responded to, the gallery hero would shoot persistently, until a phenomenal score was made, which would be held up for the inspection of the world as what can be done with a pocket revolver.

A well made revolver is a safe, accurate, and reliable weapon in the hands of a cool person. An element of danger exists always with excitable persons who handle firearms, and a short-barreled pistol or revolver is more dangerous than any other firearm, when carelessly handled.

Fig. 82. — Mr. F. O. Young. Pistol and Revolver Shot, San Francisco, Cal.

A first-class revolver is a safe weapon to handle by a careful person, but a poorly made revolver is the most dangerous of all firearms, even in the hands of careful persons. It is a noticeable fact that the beautiful revolvers of Smith & Wesson, the Colt Company, and such concerns bear simply the names of the makers; the cheap, worthless trash are stamped with the most high-sounding

names which immediately brands them to the expert as worthless articles.

In looking over the various American revolvers, I could find none I considered worth testing but of the following make: Smith & Wesson, Colt's Patent Fire-arms Manufacturing Company, American Arms Company, Hopkins & Allen Manufacturing Co., Marlin Firearms Company, and John P. Lovell Arms Company.

A test of revolvers produced by the above manufacturers was conducted at the range of the Massachusetts Rifle Association at Walnut Hill, under the following conditions: —

Five expert pistol shots were engaged to do the shooting. The distance at which the arms were shot was twenty-five yards, and the target shot on was the center of the 100-yard rifle target, with the bullseye and circles out to and including the four circle. This center is thirteen inches in diameter; but believing that the revolvers would be poorly sighted, it was thought necessary to have a larger target to catch the shots, therefore this center was pasted in the middle of a square piece of pasteboard, in size 28 x 28 inches, which made the whole target the same size as is used in pistol and revolver shooting at Walnut Hill, at a range of fifty yards. Two racks were used, into which the targets were slipped, enabling one to change targets expeditiously. Two hundred new targets on clean pieces of pasteboard were arranged for this test, and every group of shots was fired at a clean target.

The question of how to do the shooting was submitted to the shooting experts. Should the shooting be done at a rest, in such manner as to make known the possibilities of revolvers and ammunition; or should it be done in

the usual off-hand style as in matches? It was the opinion of the shooting experts that the latter mode should be adopted. It should therefore be borne in mind that the results represent both possibilities of arms and ammunition and skill of the shooters; but every man taking part in

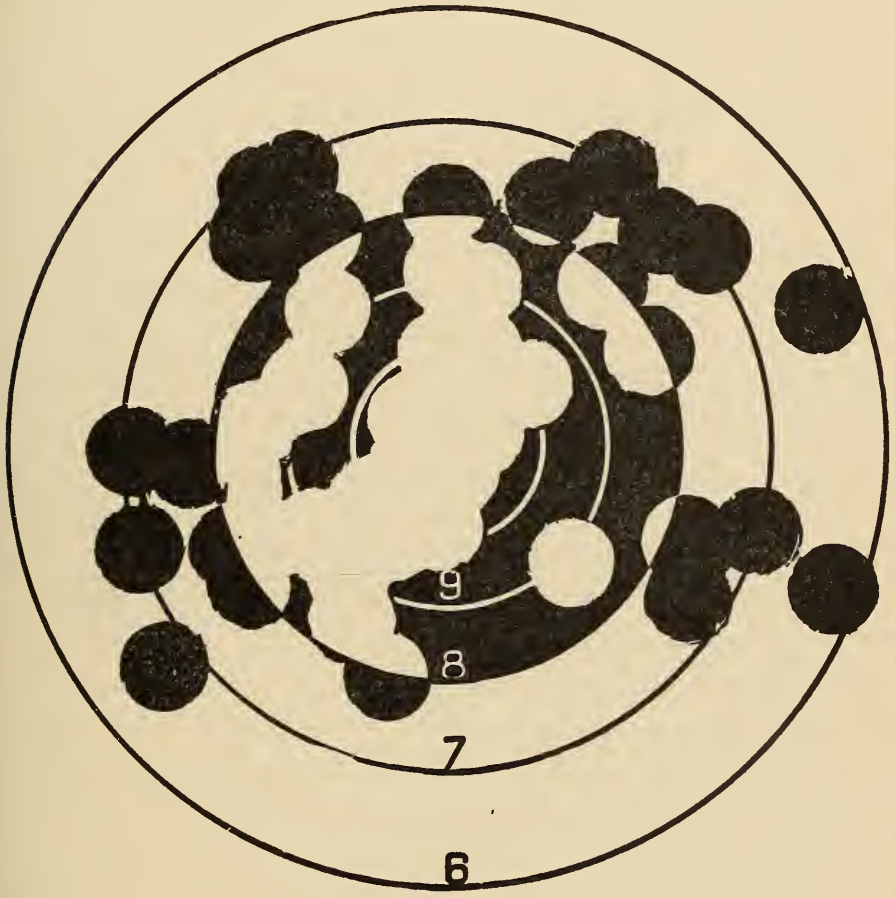

Fig. 83.—Fifty consecutive shots at twelve yards, by Mr. W. W. Bennett with a Smith & Wesson Pocket Revolver, .38 caliber, 3¼ inch barrel, U. M. C. Co. ammunition.

the shooting possesses skill sufficient to shoot frequently into the nineties in ten shots at fifty yards on the Standard American 200-yard rifle target, with a pistol.

Two days were taken to do the shooting, five men shooting most of the .38 calibers, and four the .32 calibers, a separate day being given to each.

When testing the revolvers, the arms were arranged on a table. On a bench near by was the ammunition, supplied by the three different companies; viz., the Union Metallic Cartridge Company, Winchester Repeating Arms Company, and the United States Cartridge Company.

Each company manufacturing the revolvers and the ammunition was invited to send a representative to witness the shooting, and to take part in it. Owing to a very heavy rain on the night before and on the morning of the test, a number of those invited failed to appear; but representatives from the Union Metallic Cartridge Company, and the United States Cartridge Company were present; the shooting expert of the latter company assisting in the shooting, while the representative of the Union Metallic Cartridge Company was busy making careful notes. There were also present several expert rifle and pistol shots. The weather conditions were good for shooting on both days.

After an explanation of the manner of conducting the test had been given, a .38 caliber revolver was taken from the lot and loaded by the one conducting the test, and handed to one of the shooters, who did not know the make of ammunition he was shooting. The shooter proceeded to the firing-point, and with the greatest care fired the five shots. The target was then removed, brought to the shooting pavilion, and marked. In the meantime the revolver was carefully cleaned, and loaded with five shots of another make of ammunition. The shooter then fired five more shots, on a clean target, after which the target was removed and marked, the pistol again loaded and

charged with another make of ammunition, and shot by the same marksman for a third time. When one man had shot a certain make of revolver five rounds with the

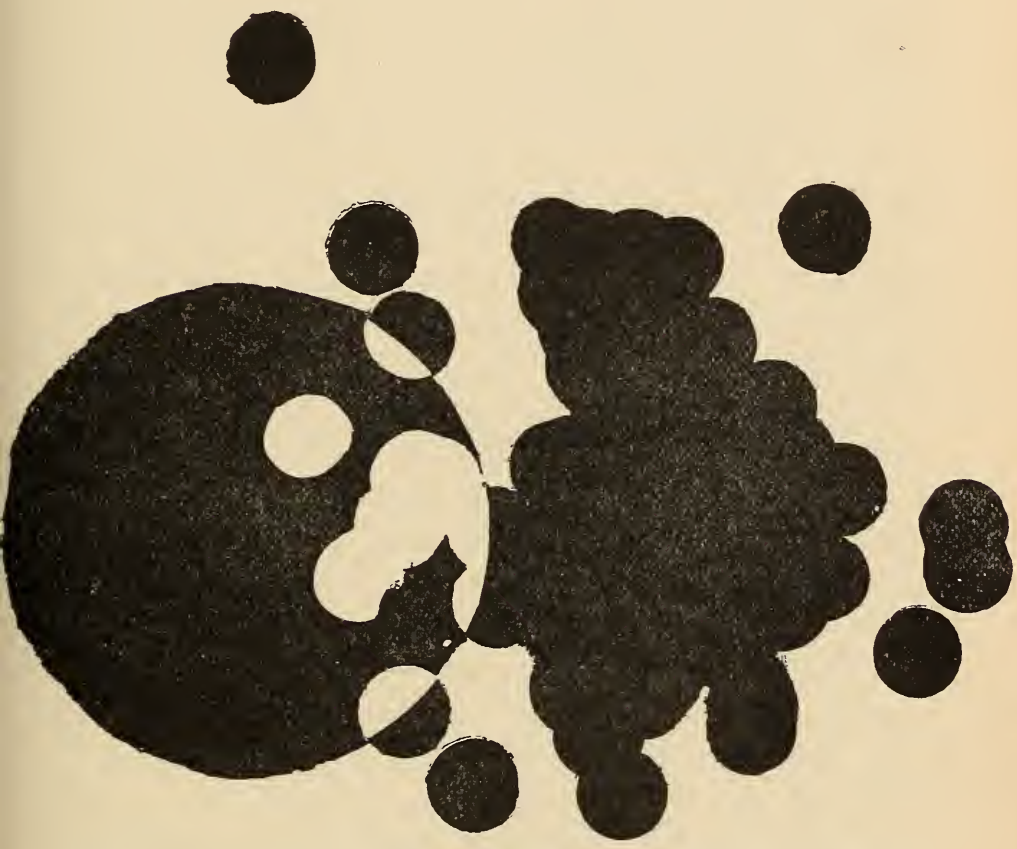

Fig. 84. — Group of fifty consecutive shots at twelve yards, with Smith & Wesson .38 caliber Pocket Revolver, 3¼ inch barrel.

different makes of ammunition, that arm was put into the hands of another expert, and shot by him the same as the first man shot. Thus the line of revolvers was tested; and had it not been for some of the arms being withdrawn, each man would have fired fifteen shots from each revolver, or 105 shots with the .38 calibers, making a total of 525 shots from the .38 caliber revolvers.

There were entered on the list of the .38 calibers the following revolvers : —

Smith & Wesson, single-action.
" " double-action.
Colt double-action.
American Arms Company, single and double-action.
Marlin, double-action.
Lovell (Swift), double-action.

In .32 calibers : —

Smith & Wesson, single-action.
" " double-action.
American Arms Company, single and double-action.
Hopkins & Allen, double-action.
Marlin Patent Firearms Company, double-action.

The action of the Smith & Wesson revolvers seemed perfect ; there was no accidental discharges, no puncturing of primers, no keyholes from the shots, and the mechanism worked perfectly. They were distinguished for beauty of finish, symmetry, and fine shooting qualities.

The Colt's Patent Firearms Company entered but one revolver, a .38 caliber double-action, such as is supplied to the police of a number of cities. This arm shot well throughout the test, showing no faults or defects of any kind. It shot well with both long and short cartridges. There was one accidental pull-off, wholly the fault of the shooter. It possesses strength, symmetry, and first-class shooting qualities.

It was the unanimous opinion of all the experts interested in this test, that the above two makes of revolvers possess about equal merit, and were entitled to be classed as No. 1 for excellence.

The American Arms Company revolver is a well-made arm, and possesses a very ingenious mechanism. It is an accurate shooting arm, but was poorly sighted — so poorly

that by aiming at the bottom edge of the four-inch bullseye in the center of the large target, all the shots could not be kept on the target; the front sight was not high enough to permit aiming at an object and striking it or near it.

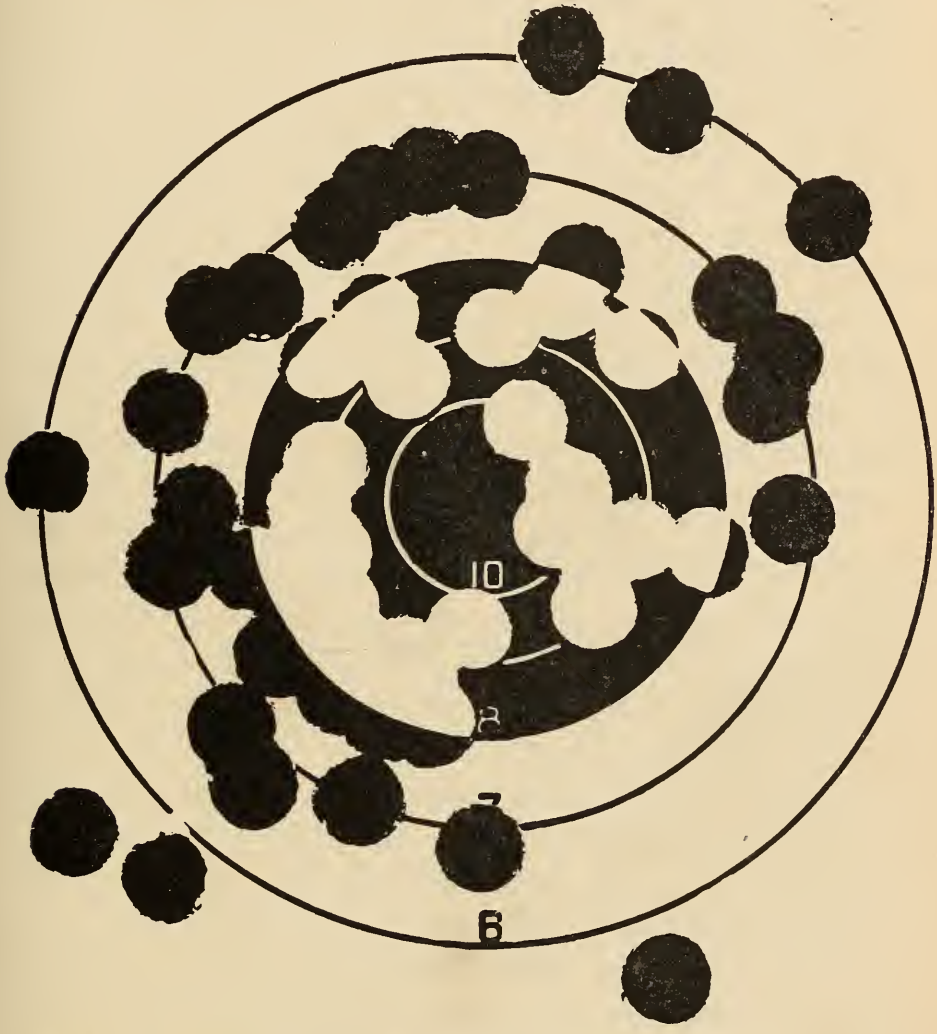

Fig. 85.—Fifty consecutive shots at twelve yards with a .38 caliber Colt pocket revolver, Police Model.

The incorrect sighting is a fault easily remedied, but the mechanism of the arm submitted was faulty, and was the

chief cause of its poor showing. The mechanism is such that by pressing the trigger, it is cocked, and a second pressure of the finger releases the hammer. If it is desired to use the arm as a double-action hammerless, a little stud, which projects on the side of the action, is set over, and by pressing the trigger the arm is not cocked, but the concealed hammer brought to a certain point; and as soon as this point is passed, the arm is discharged. In the .32 caliber, the mechanism worked perfectly, but in the .38 caliber the discharge of a shot would frequently change the mechanism, and when attempting to cock the revolver by the only way provided to do it, the arm would be accidentally discharged. After the test was finished, the arm was shot, and by setting the stud at each time it was jarred out of place, and by aiming fourteen inches below the bullseye good targets were made. With the above faults remedied, the revolver would undoubtedly be popular with many.

The Hopkins & Allen revolver was entered by Hulbert Brothers of New York. There was no .38 caliber entered, the arm being a .32 double-action. It was not so well made an arm as the previous arms, the parts bearing no comparison with the workmanship of a Smith & Wesson or a Colt revolver, and it was not a smooth-working revolver. It was poorly sighted, shooting high and to the left of the bullseye with all the shooters. But with the above faults, it shot quite well and regularly.

The Marlin revolvers, both in .32 and .38 caliber, developed serious faults. They were inferior in workmanship and appearance to the Smith & Wesson and Colt revolvers, and want of care in their manufacture made them positively dangerous arms to handle. From the first to the last shot fired with both .32 and .38 caliber Marlin revolvers, the nose of the hammer punctured the primers of every cartridge of the three different makes. This per-

mitted an escape of gas, and so fouled the revolvers that they would not stand cocked. As a result, the revolvers were accidently discharged as many as three times out of five. The arms proved to be so dangerous they were not shot through the test, and those groups recorded represent, in some instances, cartridges supplied for those accidentally fired; the five shots being fired to learn the shooting qualities. The manufacturers claimed after the test that the revolvers were sent from the factory before being inspected by a competent person that the fault alluded to has been remedied.

The Lovell revolver appears to be a well-made arm, but it was discovered to be too large in the bore to shoot any of the ammunition provided, and was withdrawn.

In the tables presented herewith will be found the records of the several arms tested, with descriptions of same. The results should not be considered as representing the possibilities of revolvers and ammunition, for skill of the shooter also enters into the result. It is possible to do much finer shooting with a pocket revolver than is here shown, and this was vividly illustrated at the conclusion of the test with the .38 caliber, when each shooter present was permitted to shoot with a preferred arm for his own satisfaction, and finer targets than those recorded were often made.

The writer carried to the range, on the day of the tests, a Smith & Wesson single-action .38 caliber revolver with a four-inch barrel. This arm was perfectly sighted, and it was his intention to hold it in readiness to show what a first-class pocket revolver was capable of doing. An opportunity offered after the test had closed, and one of the shooters was invited to try the arm. He recorded the following score: —

10 9 10 9 10 = 48.

Groups of shots were made with the arm which surprised many.

It was considered desirable, in recording the results of

Fig. 86.— Five consecutive shots at twelve yards, with Smith & Wesson .38 caliber Pocket Revolver, 3¾ inch barrel.

the test, to adopt the following plan: Two circles were struck. The first touched and inclosed four of the five shots; the second touched and inclosed the five shots. The diameter of the circles was then taken and recorded. Thus every target shows that four out of five shots, or eighty per cent of the shots, are in a circle so many inches in diameter; in the second column the diameter of group of five shots is shown. When the shooting is regular, and all the shots find the target, a mean is given. Where this is omitted, the shots were not caught by the target.

In order to represent the location of the groups of shots,

the distance the group of five averages from the bullseye, or object aimed at, is given, and the direction is indicated by the clock dial, as in rifle shooting. To illustrate: A group of shots recorded 6-XII means the location of the group was six inches over the bullseye at twelve o'clock; 9-III, nine inches from the bullseye at three o'clock, and so on.

It is perhaps not generally known that the mode of grasping a revolver has much to do with the elevation of the shots; therefore it is impossible to sight a revolver perfectly for different individuals. Most of the shooters shot about alike as regards elevation; but one of the experts, by his mode of grasping a revolver, and perhaps sighting, would group his shots a number of inches lower than the other men.

The tables presented are full of interest to those familiar with firearms; and many valuable deductions, it is thought, can be made from them.

32 CALIBER.

Revolver.	Action.	Length of Barrel.	Weight of Arm.	AMMUNITION. U. M. C. 4 Shots.	U. M. C. 5 Shots.	U. M. C. Location of Group.	WINCHESTER. 4 Shots.	WINCHESTER. 5 Shots.	WINCHESTER. Location of Group.	U. S. 4 Shots.	U. S. 5 Shots.	U. S. Location of Group.
Smith & Wesson.	Single.	3½ ins.	13 ozs.	3.18	5.37	3 XII	3.69	4.87	1½ XI	4.43	6	6 XII
	"	"	"	2.37	4.50	2½ IX	3.75	4.43	5 XII	3.25	5	8 XI
	"	"	"	5.12	6.75	6 XI	6	7.62	4 XII	2.69	5.62	3½ XI
	"	"	"	3.25	3.75	Centered	4 ...	6	Centered	4.31	9.75	Centered
Average...	.....	.....	.....	3.48	5.09		4.36	5.73		3.67	6.59	
	Double.	3½ ins.	13 ozs.	4.43	6.43	5 XII	2.87	3.75	4½ XI	3.50 ...	5.31	3 XII
	"	"	"	4.50	6.69	3 X	2.67 ...	4.37	2 IX	3.67	4.31	5 XI
	"	"	"	3.06	6	Centered	2.75 ...	3.75	Centered	3.62	3.75	2½ XII
	"	"	"	4.12	4.94	"	6.62	7.69	"	1.94	3.18	4 XII
Average...	.....	.....	.....	4.03	6.01		3.73	4.89 .. .		3.18	4.14	
American Arms Co.	Double or Single.	3¼ ins.	19 ozs.	6.18	10	10 XI	5.50	7.43	11½ XII	7.30	11	12 XII
	"	"	"	4.67	6.61	2 X	7.37	11.06	2½ XI	2.75	7.68	4 XII
	"	"	"	4.37 ...	6.25	5½ XI	3.25	3.67	4 XI	7.56	11.50	8 XII
	"	"	"	4.18	6.50	5 XI	2.56	4.12	4½ XII	6.31	9.50	6½ XI
Average...	.....	.....	.....	4.85	7.34		4.67	6.57		5.98	9.92	
Hopkins & Allen.	Double.	4 ins.	12½ ozs.	7.68 ...	8.30	4 XII	5.05	6	9½ IX	2.75	4.60	8 XI
	"	"	"	2.37	3.50	10 IX	7.60	9.50	6 X	4	7.60	10½ XI
	"	"	"	4.18	5	3½ IX	6	9	3 X	3.18	5.10	2 XII
	"	"	"	5.37	5.56	4 X	2.75*	4	2½ IX	7.67	8.50	5 XI
Average...	.....	.....	.....	4.90	5.59		5.35	7.12		4.40	6.45	
Marlin Arms Co.	Double.	3¼ ins.	18 ozs.	4.50	5.50	4½ X	6.87	8.31	5½ X	4	6.25	6 X
	.....	.....	.....	2.75	4.25	4 VII	5.50	7	3½ XII	3.50	4.68	2¼ X
Average.	.....	.....	.....	3.62	4.87		6.18	7.66		3.75	5.46	†

Revolver.	Action.	Length of Barrel.	Weight of Arm.	AMMUNITION. U. M. C. 4 Shots.	U. M. C. 5 Shots.	U. M. C. Location of Group.	WINCHESTER. 4 Shots.	WINCHESTER. 5 Shots.	WINCHESTER. Location of Group.	U. S. 4 Shots.	U. S. 5 Shots.	U. S. Location of Group.
Smith & Wesson.	Single.	4 ins.	17½ ozs.	3.87	6	5 in. XI	6.12	7.75	5 in. XII	4.50	7.50	4 in. XII
	"	"	"	2.25	3.69	6 X	4	6.50	7½ XI	4.25	4.75	9 XI
	"	"	"	2.69	5.87	4 VI	3.62	6.12	2 VI	2.31	5.18	2 VII
	"	"	"	3.50	4.94	1 XII	1.25	2.75	3 XII	2.25	4	3½ XII
	"	"	"	5.25	5.50	3 XII	3.87	6	5 XII	6.50	7.87 ...	6 XI
Average...	.....	.....	...	3.50	5.20		3.77	5.82		3.96	5.86	
Smith & Wesson.	Double	4 ins.	17½ ozs.	5.12	5.75	3 in. XI	2.06	3.43	3 IX	6.62 ...	8	4 IX
	"	"	"	2.62	4.87	3 IX	4.38	7.87	5 IX	3.75	5.87	5 XI
	"	"	"	6	8.37	2½ IX	3.88	6.37	2 IX	4.50	4.75	7½ X
	"	"	"	5.50	7.37	4½ X	7	7.37	6½ IX	8.50	10.37	5½ IX
Average...	.....	....	.....	4.81	6.59		4.33	6.26		5.84	7.24	
Marlin Arms Co.	Double	3½ ins.	17½ ozs.	5.25	8	7 XII	3.50	6.50 ...	2 I	5		
	"	"	"	4.75	6.75	3 III	‖		13½ XII	5	¶	3 III
	"	"	"	§		11 XII	¶		10 XI	‖	7.12	
	"	"	"	5.37	8	8 XII				4.25	¶	10 XII
American Arms Co.	Single or Double	3½ ins.	18½ ozs.	4.70	¶	11 XII	**		10½ XII	††		11 XII
		"	"	4.25	¶	10 XI	5.85	6.06	9½ XII	4.87	7.25	11 XII
		"	"	7.60	11.18	9½ XII	4	4.25	11½ XII			

Revolver.	Action.	Length of Barrel.	Weight of Arm.	AMMUNITION. U. M. C. LONG. 4 Shots.	U. M. C. LONG. 5 Shots.	U. M. C. LONG. Location of Group.	WINCHESTER LONG. 4 Shots.	WINCHESTER LONG. 5 Shots.	WINCHESTER LONG. Location of Group.	U. M. C. SHORT. 4 Shots.	U. M. C. SHORT. 5 Shots.	U. M. C. SHORT. Location of Group.
Colt's.	Double	3½ ins.	23 ozs.	2.36	4	7 in. XII	2.36	4.43	9 in. XI	7.75	9.75	7 in. XII
	"	"	"	4.86	7.30 ...	5 VI	4	7.31	5 VI	3.37	4.06	4 VI
	"	"	"	8.12	1 shot off	10 XII	4.57	6.31	5 XII	3.67	5.50	4½ IX
	"	"	"	4.31	6	6 IX	2.75	6.25	3 X			
	"	"	"	2.50	5.12 . ..	8 XI	6.82	7.50	6 XI			
Average...	.....	.....	.....	4.43	5.60	‡	4.10	6.36 ...		4.93	6.43	

* Keyholes. † Every primer punctured by hammer withdrawn on account of accidental discharges. ‡ Average of four groups. § Three shots on target in 6½-inch circle. ‖ Three shots on target. ¶ Four shots on target. ** Three shots in 3-inch circle. †† Three shots only on target in a 2½-inch circle.

My own conclusions, drawn from this and previous private tests with pocket revolvers, are as follows: The best made revolver is always preferable; for not only accuracy is secured, but the greatest safety in using them. Poorly made revolvers may shoot well, if the bore is of proper size, and the cylinder comes opposite the barrel; but poorly made revolvers soon lose their good shooting qualities, if they possess them, and the danger is very great in using them, for they soon fail to work properly. A .32 caliber cartridge, owing to the lighter charge, does not seem to disable a revolver so soon as a .38 caliber. Good ammunition will shoot finely in a good revolver, when that arm is properly manipulated by a good shot; but however excellent the ammunition, it will not shoot well in an irregularly bored revolver, though the arm may be otherwise perfect.

The impression was formed by the writer that one of the cartridge companies had encountered this difficulty; and in order to have its ammunition give good results in revolvers having barrels slightly larger than others, the base of the bullet had been hollowed, and with a soft bullet it upset enough to fit the barrel.

CHAPTER IX.

AMMUNITION FOR PISTOLS AND REVOLVERS.

All modern American pistols and revolvers are made to shoot metallic cartridges. There are a few fine muzzle loading dueling and target pistols in use at the present time, but the great amount of labor necessary to load them, in comparison with the modern breech loading arms, makes them unpopular with most pistol shots, and out of the question for revolvers for military use, where rapidity of firing and reloading is required. The difference between a muzzle and a breech loading, single-shot pistol is apparently the same as the difference between the two systems of rifles. If loaded a certain way, there is no advantage in one over the other. Probably a muzzle-loading pistol, charged the usual way of dueling pistols, would show finer work than a breech loading pistol of the same weight, length of barrel and bore, loaded with a factory metallic cartridge. But if two pistols exactly alike, with the exception of one being a muzzle loader, and the other a breech loader, were loaded with the same charge, one being loaded at the muzzle, the other at the breech; but instead of using a factory metallic cartridge, the bullet was seated in the rifling, and the shell loaded flush to its top, and placed in the chamber, after the manner of loading the modern breech-loading target rifle, it is believed that one pistol would shoot as well as the other. Many of the foreign target and dueling pistols of recent manufacture are made breech loading, and loaded in the manner described. The expert pistol shot can prepare his own ammunition if desirable.

With few exceptions, modern American pistols and revolvers take the metallic cartridges, which are produced

Fig. 87. — Mr. C. F. A. Armstrong, Boston. Amateur Pistol Shot.

in enormous quantities and variety of styles in this country. These cartridges vary in size, and are known to the trade from .22 to .50 caliber, and contain charges of powder

from three grains to forty, and bullets weighing from thirty to 300 grains.

The cartridge companies in America manufacture the following cartridges, which are used in American pistols and revolvers: —

Rim-Fire Cartridges.

Conical ball cartridge for indoors, .22 caliber. .22 caliber: powder, 3 grains; lead, 30 grains. .22 caliber (long): powder, 5; lead, 30. .22: powder, 5; lead, 40. .22: powder, 7; lead, 45. .25 caliber · powder, 5; lead,

Fig. 88. — Score of ninety-five, shot by Mr. E. J. Darlington, at Wilmington Del., December 25, with a Stevens pistol. Distance fifty yards. Target ¼ original size.

38. .25 Stevens: powder, 11; lead, 65. .30 caliber. powder, 6; lead, 55. .30 caliber (long): powder, 9; lead, 55. .32 caliber (ex. short): powder, 6; lead, 55. .32 caliber (short): powder, 9; lead, 82. .32 caliber (long): powder, 13; lead, 90. .38 caliber (short): powder, 18; lead, 150. .38 caliber (long): powder, 21; lead, 148. .41 caliber: powder, 13; lead, 130. .41

caliber (long): powder, 16; lead, 130. .44 caliber (short): powder, 21; lead, 200. .44 caliber: powder, 26; lead, 200. .44 caliber: powder, 23; lead, 200. .46 caliber: powder, 26; lead, 230.

Center Fire Cartridges.

.22 caliber (extra long): powder, 8; lead, 45. .22 caliber: powder, 15 grains; lead, 45 grains. .25 caliber: powder, 20; lead, 77 or 86. 32 caliber Protector: powder, 4; lead, 51. .32 caliber Smith & Wesson: powder, 9; lead, 85. .32 caliber Colt: powder, 12; lead, 90. .32 caliber (short): powder, 9; lead, 82. .32 caliber (long): powder, 13; lead, 90. .32 caliber Colt: powder, 20; lead, 100. .32 caliber H & R: powder, 15; lead, 88. .32 caliber Winchester: powder, 20; lead, 115. .32 Smith & Wesson .32–.44 target: powder, 10; lead, 83. .32 caliber Smith & Wesson rifle and .32 caliber Smith & Wesson, .32–.44: powder, 17; lead, 100. .38 caliber Merwin & Hulbert: powder, 14; lead, 145. .38 caliber Smith & Wesson: powder, 14; lead, 145. .38 caliber (short): powder, 15; lead, 130. .38 caliber (long) Colt: powder, 18; lead, 132. .38 Smith & Wesson, Special self-lubricating cartridge: powder, 14; lead, 145. .38–.44 Smith & Wesson target: powder, 11; lead, 83. .41 caliber: powder, 20; lead, 130. .41 caliber Colt's D. A.: powder, 14; lead, 160. .41 caliber (long) D. A.: powder, 21; lead, 200. .44 caliber Webley: powder, 18; lead, 200. .44 caliber Bull Dog: powder, 15; lead, 168. .44 caliber Colt: powder, 23; lead, 210. .44 caliber Smith & Wesson, American model: powder, 25; lead, 205. .44 caliber Smith & Wesson, Russian model: powder, 22; lead, 255. .44 caliber Winchester: powder, 40; lead, 200. .44 caliber Merwin & Hulbert: powder,

30 ; lead, 220. .44 caliber Smith & Wesson, Russian model, gallery : powder, 7. .44 caliber Smith & Wesson,

Fig. 89. — Col. Howard Simpson. Expert Amateur Pistol Shot, Wilmington, Del.

Russian model, gallery, round ball: powder, 7. .45 caliber Webley: powder, 20 ; lead, 230. .45 caliber Colt: powder, 35 ; lead, 250. .45 caliber Smith &

Wesson (Schofield) : powder, 30 ; lead, 250. .50 caliber : powder, 25 ; lead, 300.

The above list comprises all the metallic cartridges, known to the author, which can be found in the market at the time of writing this chapter. Many of these cartridges are adapted to almost obsolete patterns of pistols and revolvers, and would never be selected by skilled marksmen to do fine work, for the reason that both pistol and cartridge are not suitable for good shooting.

I have previously alluded to the great number of cheap, worthless pistols and revolvers to be found in the American market. Many of the cartridges are for these arms. I have also mentioned the great quantity of pistols and revolvers intended for weapons of defense at short range. Among this list are numerous cartridges for these weapons, and still others are for the best and most accurate of American pistols and revolvers. These, with a few for foreign weapons, make up the list.

Among the cartridges largely used in single-shot pistols at the present time are the following : —

Rim-Fire Cartridges.

.22 caliber, conical balls ; .22 caliber, short. .22 long rifle ; .22 Winchester, .25 Stevens.

Center-Fire Cartridges.

.32 caliber Smith & Wesson ; .32 caliber Colt ; .32 caliber (short) ; .32 caliber (long) ; .32 caliber Winchester rifle cartridge ; .32 caliber Smith & Wesson rifle.

For revolvers no expert marksmen, unless obliged to, would use rim-fire cartridge. The center-fire cartridges giving the best results are as follows : .32 caliber Smith & Wesson ; .32 caliber Colt ; .32 caliber (short) ; .32 caliber (long) ; .32 caliber Smith & Wesson rifle,

with round or conical ball, light and full charge; .32 caliber Smith & Wesson, .32–.44 Russian model; .38 caliber Merwin & Hulbert; .38 caliber Smith & Wesson; .38 caliber (short); .38 caliber (long); .41 caliber; .44 caliber Colt; .44 caliber Smith & Wesson, American

Fig. 90.—Thirty shots, by Mr. H. S. Harris, at fifty yards, with Stevens Gould Model Pistol, .22 long-rifle U. M. C. cartridge, at Walnut Hill, Mass., Dec. 30, 1893. Target reduced to one fourth the original size.

9 9 9 10 10 10 9 9 9 10 = 94
9 9 9 8 8 9 10 10 10 10 = 92
10 8 10 10 9 10 10 10 9 10 = 96=282

model; .44 caliber Smith & Wesson, Russian model, full charge and light charge, with round or light conical bullet; .44 caliber Winchester; .45 caliber Webley; .45 caliber Colt's Army; .45 caliber Smith & Wesson (Schofield). In rim-fire cartridges the .22 caliber conical ball cartridge is used in considerable quantity. It makes very little report, hardly any smoke, and is used largely by persons desiring practice indoors, where smoke and noise would be objectionable. Manufacturers claim this cartridge possesses great accuracy at short range (ten or fifteen yards), and will not injure the pistol. It is true

that very fine shooting can often be done with this cartridge, but the explosive substance with which this cartridge is charged is tremendously powerful, and the slightest variation in the quantity affects the power of a cartridge, therefore it is not unusual to get a wild shot with good holding, and it is not uncommon to have a bullet

Fig. 91. — Ten consecutive shots at fifty yards, by Mr. Sumner Paine, shot at Walnut Hill, April 23, with a Stevens Gould Model Pistol, .22 caliber; score 96; target reduced to one quarter original size.

lodged in the barrel of the pistol from lack of power in the cartridge sufficient to force it out. The question of its not injuring a pistol may be true; but I should hesitate to use them in a pistol I desired to keep for the finest work, although the sport which can be obtained with these tiny cartridges tempts many enthusiasts to use them in great quantities. There are conical ball .22 caliber

cartridges in the market with very thick, irregular heads. In using them there is much danger of premature dis-

Fig. 92. — Mr. H. E. Tuck, Haverhill, Mass. Amateur Pistol Shot.

charges, as by closing the pistol the head of the cartridge is jammed, and an explosion is likely to occur, as they did several times in the writer's hands. This fact well illustrates the greater danger in handling rim-fire over center-fire cartridges.

The .22 caliber (short) cartridge is consumed annually

by the million in America by pistol shooters. It is probably as accurate, if properly made, as any cartridge in the world up to a distance of fifty yards. It doubtless will continue in popularity for many years, for it is difficult, if not impossible, to make a cartridge of this size to sell for the price this cartridge does, and have it center-fire, besides the difficulty of making a primer small enough to fit a .22 caliber straight shell. In all calibers above .22, the rim-fire cartridge is fast becoming obsolete, and they are never chosen now by the expert pistol shot. The chief faults of the rim-fire cartridges are danger and unreliability caused by the action of heat on the lubricant. Rim-fire cartridges can be spoiled by placing them near a hot stove or where great heat can reach them, or even by placing them in a show window where the sun strikes them; and ammunition which would shoot well on leaving the factory, from the causes mentioned would be liable to either miss fire or shoot in an irregular manner. Center-fire cartridges are safer to handle, less liable to be injured by temperature. Since the publication of the first edition of this work, great improvement has been made in American metallic cartridges for pistols and revolvers, improving the accuracy and lessening the liability of deterioration. Prominent among the faults in pistol cartridges are the following: —

1. The exterior diameter of the cartridge, instead of the interior diameter, conforming to the bore of the pistol.
2. The excessive crimping of the shell to hold the bullet.
3. The placing of the lubricant on the exposed part of the bullet, instead of in cannelures covered by the shell.
4. The want of a proper powder to load the cartridge.

The first fault may properly be laid to the door of the

manufacturer of the arms, which we are glad to say is found mostly in cheap revolvers.

The second fault is now largely overcome by cartridge-makers, and as a result better shooting is being done.

The third fault the writer claims some credit for correct-

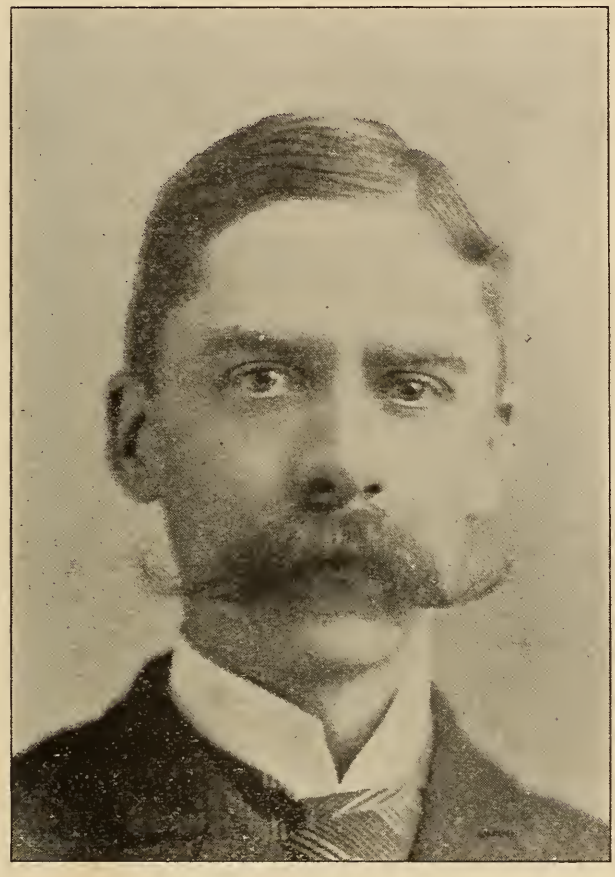

Fig. 93. — Mr. N. A. Hughes. Expert Amateur Pistol and Revolver Shot. Williamsport, Penn.

ing. The Government Ordnance Board wisely saw the fault of such a cartridge, and made the Government revolver cartridge with no exposed lubricant. The Winchester model, 1873, rifle cartridge has no outside lubri-

cant. This is one reason why the Colt frontier revolver is the favorite arm of thousands of frontiersmen, when experiments would probably convince the most sceptical that the Russian model cartridge as a charge possesses far greater accuracy, and if in the hands of a battalion of cavalry would show much better results than the army cartridge or the .44 Winchester. The original Smith & Wesson Russian model cartridge was designed by officers of the Russian government, but why they decided to have an outside lubricant the writer could never understand. This cartridge, as formerly made, when shot in a Smith & Wesson revolver, in cold weather, if shot slowly out of doors, would foul a revolver to such an extent as to disable it; and as Russia is a cold country, it would seem easy to imagine the difficulty likely to arise from this cause. The writer, perceiving this fault in the Russian model cartridge, some time ago visited the factory of the Union Metallic Cartridge Co., and suggested a change. The superintendent of the works immediately invited the writer to the testing-room, where fifty shots were fired rapidly without cleaning, and the result offered as proof of the excellence of the cartridge. It was suggested that a box be placed out of doors, it being a cold day, which was done, and after a brief time the cartridges were shot slowly, and before the box was half consumed the revolver could not be cocked, from the excessive fouling. This enterprising company at once saw the fault in this cartridge, and in a short time the writer had the pleasure of receiving a box of the new cartridges, with no outside lubricant, which, upon testing, were found much cleaner; and it is believed that twenty, or perhaps more, of these inside lubricated cartridges can be fired in a Smith & Wesson revolver, and accurate shooting secured. The improvement was so apparent that this company discontinued the old manner of

making this cartridge, and manufacture its entire product of this cartridge, as well as those for modern pocket revolvers, with no exposed lubricant; and other companies soon followed the example.

All ammunition which is intended to be carried in a belt or the pocket should have no outside lubricant. When the exposed part of the bullet is freely lubricated, it is likely to become detached on one side, and experiments have shown that a bullet, with grease on one side only, will not shoot accurately; and I am pleased to observe that most cartridges for smaller calibers are now made with an increased number of cannelures and no exposed lubricant.

The chief trouble with revolver ammunition to-day is its excessive fouling from the grease and powder. By firing bullets into soft snow from a revolver which has been shot a few times, the investigator will find a ragged bullet, which shows how it raked over the adamantine-like crust which adheres to the inside of a revolver barrel, and which impairs its accuracy; therefore the fine shot cleans his revolver about once in every ten shots, if shooting the full charge. We have seen frontiersmen who stated they seldom clean their revolver except when they go hunting for a victim; but as these individuals never did what is now called fine shooting, and the man who cleans his revolver as often as every ten shots puts ten consecutive shots in a four-inch bullseye at thirty yards, it is evident that keeping a revolver clean is conducive to good marksmanship.

Most shooters believe a great improvement will, before long, be made in powder, and it is thought that this will lessen the fouling of revolvers; but this difficulty is not likely to be wholly overcome.

A new cartridge recently invented and perfected by Mr.

D. B. Wesson, senior member of the firm of Smith & Wesson, of Springfield, Mass., the famous revolver manufacturers, is known as the self-lubricating cartridge, and it

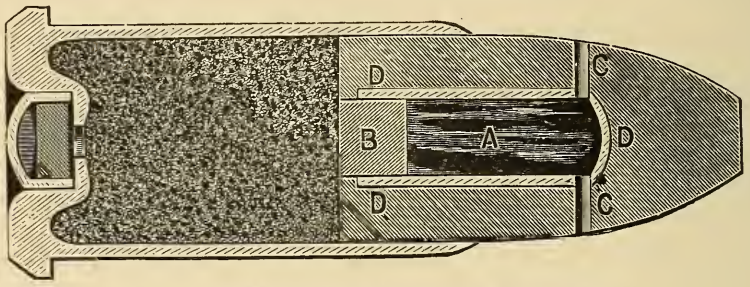

Fig. 94. — Self-lubricating cartridge before firing.

was invented by Mr. Wesson with the object of lessening the fouling in revolvers. The finest shooting revolver in the world, if shot rapidly in a dry atmosphere, is likely to become so inaccurate by fouling as to greatly affect its usefulness. Mr. Wesson sought to overcome this difficulty in the following manner : —

The bullet is provided with a core in its base about one eighth of an inch in diameter. Into this core a copper plug is inserted. The core is filled with lubricant, and at the base of the core is a brass stopper. From the bottom

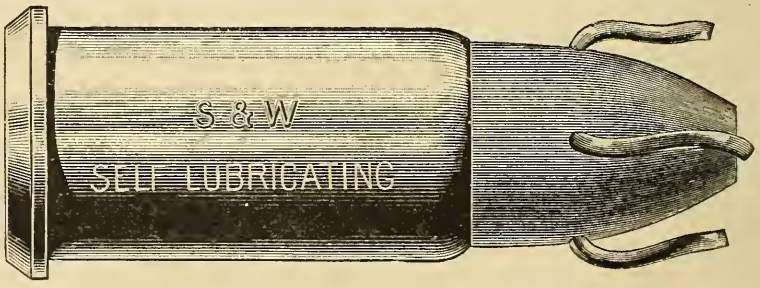

Fig. 95. — Action of cartridge when fired.

of the core there are four minute passages extending in different directions toward the point of the bullet, coming out

at the point above the shoulder. These passages are also filled with lubricant. After the discharge of the cartridge, the gas forces the brass plug up the core, thus driving the lubricant through the four passages above referred to, and it is claimed by the inventor that by this means there is an even distribution of the lubricant along the barrel of the revolver, which keeps the residuum moist and the barrel clean. This moisture prevents what is termed by riflemen, as freezing on the barrel, which means that the residuum, which at the time of firing is in a molten state, cools rapidly, adhering to the barrel with such pertinacity as to permit of removing only with the most vigorous application of brush, and often making it necessary to apply a wire brush and water.

A careful test of these cartridges was made by the writer at Walnut Hill, Mass., at the range of the Massachusetts Rifle Association. Several hundred rounds of the cartridges in .38 caliber were shot from Smith & Wesson revolvers with barrels of different lengths from 3¼ up to six inches. The results in every trial were excellent. There is a diminution of recoil, which may not be attributed to the construction of the bullet; the non-fouling qualities of the cartridge were conspicuous. Fifty consecutive shots were fired in one test, after which a careful trial was made for accuracy, and a series of shots at fifty yards placed in a group five inches in diameter. Another trial was made; and after shooting a number of shots with the arm, Mr. H. S. Harris, the well-known pistol expert, fired a series of seventeen consecutive shots, off-hand, at a distance of fifty yards, on the Standard American target, all of which were bullseyes. The revolver used was a Smith & Wesson, with a six-inch barrel.

Viewing this cartridge solely on the grounds of accuracy,

it is in every way a superior cartridge. The radical departure in its construction caused me to watch vigilantly for irregularities in shooting, but I discovered none. There was not a keyhole in the several hundred shots fired, not an unaccountable; and while I am not prepared to say that it was the most accurate cartridge known, I do not hesitate to state that I have never seen any more accurate central-fire cartridges when fired from a revolver. Some of the modern central-fire pistol cartridges have been improved to a great extent during the past few years, to such an extent that they are near perfection; and when a cartridge is produced of superior merit, it can only be in a small degree superior. It is the opinion of all the expert pistol shots who have shot this new cartridge that it is a cleaner cartridge than those manufactured by the old method, with the lubricant in the cannelures. The new cartridge, in a Smith & Wesson revolver with a six-inch barrel, seems to shoot with nearly as much accuracy as the famous long-rifle cartridge in a single-shot pistol with a ten-inch barrel.

I am informed a test of this cartridge has been made by the United States government, the results showing increased accuracy as compared with regular ammunition.

It is stated that the price of the new cartridge is slightly in advance of the regular products of the factory, but those seeking the most accurate cartridge will not be influenced against using it by the additional cost. To an indifferent shot, the superiority of the ammunition, if it exists, would count for but little. It would probably show to best advantage in shooting a long series of shots, where cleaning pistols was prohibited. The ammunition is manufactured by Smith & Wesson at Springfield, Mass., and an illustration of it is presented herewith.

Newly made ammunition is more desirable than old, if

great accuracy is desired; hence many marksmen prefer to load their own ammunition, the mode of which will be found in another chapter.

The use of nitro-powders in revolvers has not attracted the attention in this country that it has in England. The late English mails bring me advices that, in addition to the recent successful trial of "S. V." powder in revolvers at Bisley, there has been a successful trial of it in the matches of the North London and South London Revolver Clubs, which are, I understand, adjuncts to the rifle clubs. Mr. H. Andrews, at the North London Rifle Club, Ilford Grange, in 1893, scored the possible of forty-two out of forty-two, at twenty yards, bullseyes counting seven. A diagram of his target is shown in the accompanying illustration. On the following week, Lieutenant

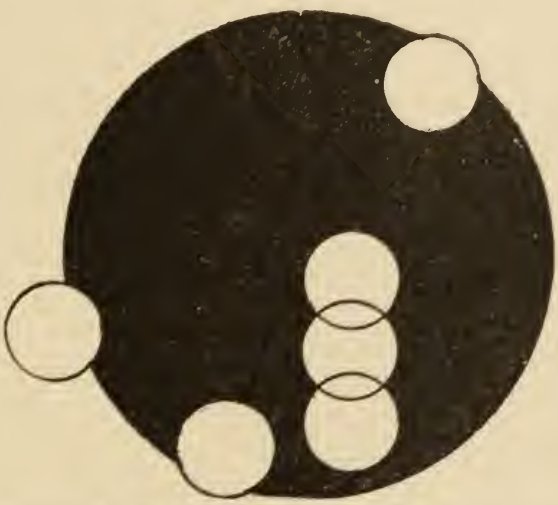

Fig. 96.—Six shots at twenty yards with S. V. powder, in a Colt revolver.

Bailey adopted this powder, and also made forty-two points. On Wednesday, October 4, Mr. C. F. Lowe made the top score of forty-one out of a possible forty-two points. The winners of the third, fourth, and fifth

positions also used "S. V." powder, shooting above their average. The revolver used by Mr. Andrews was a Colt revolver, and the charge said to be 4½ grains of smokeless "S. V.," with a 225-grain bullet.

I have been eagerly waiting to learn if this powder or any other smokeless powder can be used successfully in a revolver as a service charge. Four and one-half grains of smokeless powder is no charge for anything but target shooting; and target shooting with a revolver as shot in many places, at the time of writing, with lightly loaded cartridges, is nothing more or less than pistol shooting. The results obtained in England are interesting, and no doubt will be good news to many who are fond of shooting light charges with a revolver at a target; for probably the use of such ammunition does away with one of the most objectionable features in revolver shooting, which is the necessity of cleaning the revolver after every ten shots.

I advise shooters to refrain from experimenting with nitro-powders until the producers have demonstrated beyond doubt their safety in revolvers and pistols.

CHAPTER X.

RELOADING AMMUNITION FOR PISTOLS AND REVOLVERS.

THERE is a general impression among the shooting fraternity that reloaded ammunition is superior to the factory made. This is doubtless true if prepared by an expert, but it is safe to say that a majority of persons would secure much better results from the factory-made cartridges than they would with those prepared by themselves. It is necessary to have perfect firearms to secure fine and regular shooting; but unless the proper ammunition is used, the superiority of the pistol or revolver will not be apparent.

As marksmen become skillful, they notice errors in shooting; if they possess enthusiasm enough to become experts, they are constantly studying to improve their work, and a large share of their attention is devoted to the ammunition. It is not uncommon to find cartridges with the bullet improperly seated in the cartridge case, or shell. The bullet is sometimes forced over one side of the shell, and, instead of being wholly seated in the shell, has the full length of the bullet on one side exposed. The common mode of lubricating, by dipping in the lubricant, after the bullet is seated in the shell, hides many defects in factory-made cartridges with outside lubrication; and the indifferent shooter fires the cartridges without thinking or investigating the cause of wild shots, until he notices what is technically known as "keyholes," or the bullets going through the target sideways instead of point on.

Other faults in factory-made ammunition are caused by age, which deteriorates the cartridge, causing the powder to cake, and the shell, bullet, and lubricant to oxidize, the latter cause also affecting the efficacy of the primer. As some cartridge companies have used one formula for making lubricant for cold weather, another for warm weather, and as lots of ammunition get scattered in all sections, and are sometimes carried in stock for several years, it can be said that one might not get so good results from factory cartridges as from those freshly prepared of home make.

There are other reasons why many of the shooting fraternity prefer to reload their shells; it is a piece of economy not to be despised, and being located in an inaccessible place, away from towns or cities where cartridges can be purchased, compels some individuals to do this work.

The marksman, in attempting to reload ammunition, will encounter many obstacles, and he is not likely to produce so good cartridges at the first trials as he can purchase in stores where they have been received fresh from the factories; but to those who desire to prepare their own ammunition, the following mode, practiced by different pistol and revolver experts, will doubtless prove a guide to many: —

If the finest work is to be attempted, the use of new shells is recommended. If old shells are to be reloaded, the exploded primer should first be removed, the shells then washed and thoroughly rinsed in water, warm if convenient; and if desirable to remove the stains from the shells, a little acid may be dropped into the water. After washing thoroughly, dry perfectly, but do not heat enough to draw the temper. Special care should be taken to have the water dried out of the pockets or primer-holes.

The next process, if the shell was previously crimped, is to expand it at the mouth.

The reloading tools supplied by manufacturers are advertised to expand as well as decap the shell, but do so very ineffectually, and a tool is recommended specially for this purpose. Unless the shell is sufficiently expanded, the bullet cannot be properly seated in the shell, and this is one of the first difficulties the beginner is likely to encounter. After expanding the shell, the next operation is to reprime the shells. It will be found necessary to use the copper primer for most of the American shells. Considerable care should be used in seating the primer, as most of the shells are not solid head, and a heavy pressure on the capper will seat the primer too deep, and often force it through the pocket and spoil the shell. If the full charge of powder is to be used in the cartridge, the shells should then receive it; but if a reduced charge is to be used in a large caliber, with the object of making cartridges for indoor shooting, many experts use a wad of pasteboard of the exact size of the inside diameter of the shell, with a hole about one half the diameter of the wad in its center. The wad is seated in the base of the shell, and the light charge of powder poured in. The object of this wad is to cause the powder to ignite quicker than it would, if spread over the base of a large shell. By the hole in the center of the wad, much of the small charge of fine powder is directly in front of the primer, and the theory of experts is that the full force of the charge of powder is thus more quickly secured.

Fig. 97.

The question of powder is a very important one. It has provoked a great amount of discussion and experimenting among manufacturers and shooters. The most

desirable point is cleanliness, as much fouling means inaccurate shooting; and as that is a very marked defect in nearly all black powders at the present time, many believe that the effectiveness and accuracy of the revolver will be increased when improvements in powder are made.

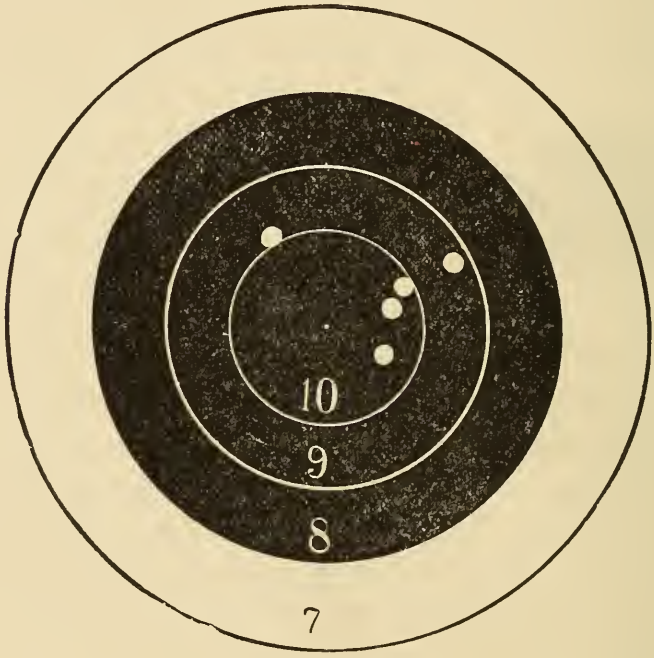

Fig. 98. — Five shots with Smith & Wesson Revolver, at fifty yards, by Mr. John L. Fowle. Reduced to one quarter original size.

In the smaller calibers and in short-barreled pistols a finer grain of powder should be used; the fine grain powder is also better for light charges.

A request to the leading American powder manufacturers to state the brands of powder they recommended for pistol and revolver shooting brought the following responses: —

The American Powder Mills recommends for pistol car-

tridges "nothing coarser than No. 2; i. e., Telegraph, Nos. 2 to 5; Rifle Cartridge, Nos. 3 to 5; also Dead Shot."

E. I. Du Pont de Nemours & Co. recommends the powders specially made for that purpose, and known as *FFF B* cartridge powder, and also *FFF A* powder.

The Eagle Duck No. 3 is also used for pistol cartridges; but Mr. Conlin, the expert in such matters, and who keeps a gallery in New York for pistol shooting principally, states that "the *FFF B* brand of powder, introduced to revolver shooters, would prove the best adapted to revolver cartridges, as I find it to be the best that I have yet tried."

The Oriental Powder Mills recommends for pistol cartridges Wing Shot, No. 2 or No. 3 grain, or Western Sporting, *Fg* or *FFg* grain.

The Hazard Powder Co. For pistol shooting, a fine grain is preferred, of "Electric," "American Sporting," or "Kentucky Rifle."

In addition to the American brands of black powder mentioned is the American wood powder, which is favored by some pistol shots on account of its non-fouling qualities. The English powder, Curtis's & Harvey No. 3, is also excellent. It is quite clean and uniform, but its cost is very high, the expense of a pound being about $1.50. The American Powder Mills' products are used by many experts, the Hazard's Kentucky Rifle is also a favorite brand. But there are many opinions as to the best powder; if a shooter obtains good results with a certain brand, it is wisdom to use it exclusively, if possible, as the different brands vary much in strength and affect elevations. Mr. F. J. Rabbeth, an acknowledged expert in firearms, has devoted considerable time to experimenting with powders, shooting many hundred shots at a rest, with revolvers fitted with fine sights, to learn, if possible, the

merits of different brands of powder for pistol shooting. His experiments with nitro powder show excellent results; but a majority of the pistol shots at the present time do not seem to favor nitro powders, but there exists a feeling that before long a powder will be produced which will cause less fouling than that in use at the present time, and such a compound will be welcomed by pistol shots.

After placing the powder in the shell the bullet is inserted, generally without a wad, and crimped into the shell.

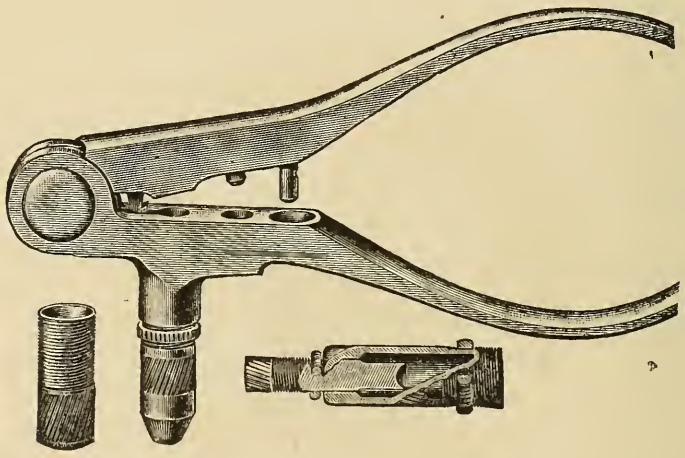

Fig. 99. — Ideal Reloading Tool.

In cartridges with full charges the bullet is usually seated with a tool made expressly for the purpose. With reduced charges, a round ball is often used, which is seated down in the shell touching the powder. It is then necessary to lubricate the cartridge; and as there are no cannelures to hold the grease, it is desirable to place the lubrication around the upper edge of the bullet. There are several ways of doing this; the most approved manner being to place a bit of cold lubricant in each shell after the bullet has been seated, then with a plug with a concave end, of about the same diameter as the shell, force the lubricant

down on top of the bullet, and by a few turns of the plug the lubricant will be placed evenly around the edge of the ball. Evenly distributing the lubricant is essential to secure even shooting.

If desirable to make the bullets, we cannot add anything to the directions given by Mr. F. J. Rabbeth, and published in the first edition of this work.

"I have been tempted to tell riflemen what I know about

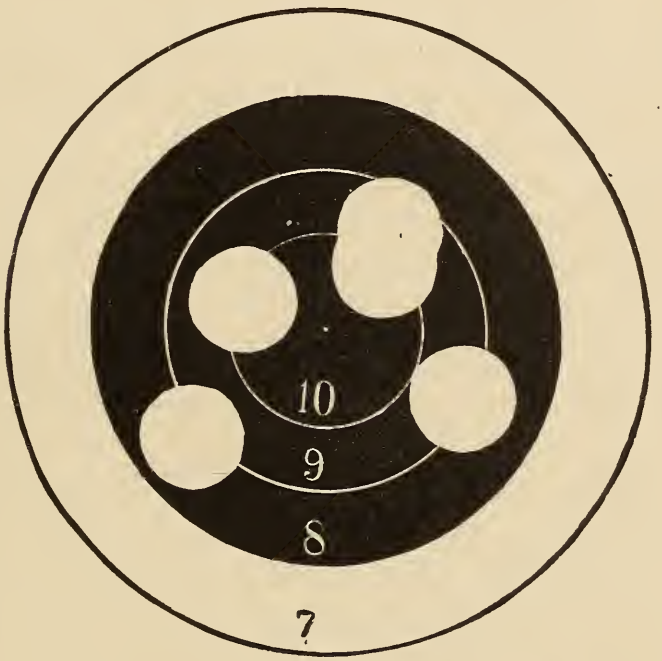

Fig. 100. — Forty-nine out of fifty, at twenty yards, with a .44 caliber Russian Model Smith & Wesson, made at the Brighton, Eng., Rifle Gallery, December 18, 1888, by Mr. Walter Winans. Best five-shot score, at twenty yards, at that time made in England. Target full size.

making bullets, thereby enabling such as have not mastered the art, but who have the time and inclination, as also the disposition, to save a penny. To begin, the mold should be of brass or composition, as lead flows to that metal better than iron or steel, and is worth more than the difference in cost. The two halves should be pivoted together,

like a pair of blacksmith's tongs (not like a nut cracker, as many of them are), with a large, well-fitted hinge screw, with a body part one-eighth larger than thread part, so that it may be screwed solid against this enlarged body part without binding the mold too tightly together. Unless these hinge screws are so fitted with shoulder, they are continually working loose, and causing delay and trouble. After the mold is pivoted together and properly jointed, it should have one well-fitted dowel pin placed as far from the pivot screw as possible in the centre of the mold head. The mold should be ample in size at the pivot or hinge, and at the head, so that it will not be likely to get sprung out of adjustment by rough usage; also that its mass may retain heat, and so preserve a more uniform temperature while in use. The cut-off should be of cast steel, one eighth to three sixteenths of an inch thick, and pivoted on a substantial, well-fitted screw, with enlarged body part, as described for hinge screw, and for the same purpose; i. e., that it may stay put when secured to place.

"The sprew hole for any ordinary sized bullet should not exceed one-tenth inch in diameter. The cut-off should project about one and a half inches beyond the mold head, and should swing far enough to one side to entirely uncover the base of the bullet. The shanks of the mold should be adapted to receive wooden handles, and with handles attached, for comfort in use, should measure about nine inches to hinge screw.

"For melting the lead a small 'Ideal' kettle should be used that will hold, when full, about twenty pounds; for dipping from this, a small 'Ideal' ladle, with round nozzle that will enter the counter sink or sprew hole of the cut-off. Heat the mold till it is near the melting temperature of lead, and when the lead in kettle is suffi-

ciently hot, dip from kettle with ladle. Apply mold to nozzle while in a horizontal position, then while still holding mold in contact, quickly elevate ladle above mold, holding them in that position for a few seconds. This gives the full pressure of the lead in the ladle on the mold while it is cooling, and by this method as perfect a bullet can be cast as can be made by swaging. They can be cast at the average rate of 225 per hour. A gas stove is much the best means of melting the lead, as a more even temperature can be maintained; but it is not difficult to cast good bullets, using almost any kind of a coal fire.

"The lead and molds should be kept at a temperature that will require a few seconds, say five to ten, for the lead in the sprew hole to solidify after the ladle has been separated from the mold. This is the true test; and while this temperature is maintained, the bullets will be cast perfectly. The mold should be held over the kettle while casting, so that any lead spilled may fall into the main body.

"The best method for lubricating grooved bullets is to mix beeswax and cylinder or other heavy oil, — one part oil to four beeswax. Procure a pair of ordinary ten-cent tweezers, file away the centre so they will grasp the bullet near the point and not slip off too readily. Dip the bullets to cover all the grooves, and set them on a board to cool. When cool, remove surplus lubricant by forcing bullets through a tube the size of a bullet. This is cheaply made by cutting off the head of a shell and soldering a tapering tin extension to the shell, say six inches long. Shove this tube on to the bullets as they stand on the board, and empty the tube as often as it fills with bullets. If the grooves are not too wide, — they should not be more than $\frac{1}{25}$-inch wide, say twelve to the inch, — this

method will give perfect lubrication. Another method about equally good is to set a quantity of bullets in a shallow pan, points up, then to pour melted lubricant among them till there is sufficient in the pan to cover all

Fig. 101. —Ten shots by Mr. F. B. Crowninshield, at twenty yards, with a Wurfflein Pistol. Reduced from a bullseye 2 11-16 in. diameter.

the grooves; set aside till lubricant is sufficiently cooled, then use the tube as described above to remove surplus. Bullets so cast and lubricated will do very fine shooting either with clean or dirty barrel."

Cartridges should not be exposed to the sun, and should be kept in a dry, cool place.

CHAPTER XI.

REVOLVER SHOOTING RECORD IN AMERICA.

When revolver shooting was introduced as an adjunct to rifle shooting, it was thought that the Standard American target for 200 yards rifle practice was proper for revolver shooting at a distance of twenty-five yards. A match was first announced at the annual meeting at Creedmoor, in 1886, in which there were three scores of forty-eight out of a possible fifty in five shots secured. There were three scores to count, or possible 150 points. The three highest scores in this match were 143, 140, 134, made by C. E. Gillette with a Colt .45 caliber army revolver and factory ammunition. There were five scores only of five shots each in which the shots were all inside of the nine-circle, which is $5\frac{54}{100}$ inches in diameter. A month later the Massachusetts Rifle Association announced a revolver match, in the annual fall meeting programme, under similar conditions, excepting the match called for five scores to count. As both matches were unlimited reëntry matches, the best three scores of the four highest individuals are taken to compare with the results secured at Creedmoor. Four scores are selected because the person at the head of the list was a professional shot, and his skill at that time was considerably in advance of his competitors.

The second, third, and fourth prize winners secured an aggregate of 142, 142, 141.

The professional shot was Chevalier Paine, who on his sixth entry secured the possible of fifty in five shots and two scores of forty-nine, making 148 out of a possible

150, or the fifteen shots (not consecutive) in a $5\frac{54}{400}$ inch circle. This gentleman fired forty shots. Of this number there were twenty-seven in the ten-circle, which is

Fig. 102.—Mr. W. W. Bennett. Professional Pistol and Revolver Shot.

$3\frac{36}{100}$ inches in diameter. Soon after this meeting revolver shooting sprang into popularity, and it was shown by the shooting of the members of the Massachusetts Rifle Association that, if revolver shooting was continued at twenty-five yards, the possible would be secured so frequently as to make the sport uninteresting. It is worthy of record that Mr. A. L. Brackett of that association made the

following ten-shot score at twenty-five yards on the Standard American target: —

10 10 10 10 10 10 10 8 10 10 = 98

It was decided by this club to change the distance to fifty yards.

Chevalier Ira Paine was the first individual known to fire 100 shots on the Standard target at this distance, which he did October 15, 1886, at Walnut Hill range, using a .44 caliber Russian model army revolver and factory ammunition made by Union Metallic Cartridge Co.

The 100 shots were as follows: —

1	7	7	8	6	9	7	6	8	9	9	= 76
2	9	10	8	7	8	9	6	9	5	8	= 79
3	9	9	7	8	7	9	7	6	10	6	= 78
4	9	5	8	6	7	9	8	10	10	10	= 82
5	8	6	9	8	8	7	7	6	8	10	= 77
6	6	10	9	6	8	9	7	9	7	9	= 80
7	9	9	10	8	6	9	7	10	9	7	= 84
8	9	6	9	9	6	10	10	8	7	9	= 82
9	10	8	10	7	8	8	8	6	9	6	= 80
10	8	6	9	8	6	7	7	8	6	8	= 73
Total											791

This score was considered remarkable at the time, but within six months several amateurs surpassed it, Mr. J. B. Fellows, W. C. Johnston, Jr., and A. L. Brackett recording April 25, 1887, in a 100-shot match, respectively 837, 827, and 801 points.

The first person who attempted to equal Chevalier Paine's record was Major C. C. Foster, who fired 100 shots with a Colt .38 caliber double-action revolver on same target, at the same distance, at Walnut Hill, November 20, 1886, he securing 782 points. The next attempt at raising the record was by Chevalier Paine, who shot

against his own record at Walnut Hill with the same weapon he used in the first fifty-yard match. He shot on March 17, 1887, with the following result: —

1	9	5	7	10	10	10	9	10	9	8 = 87
2	7	6	6	7	6	9	9	10	7	5 = 72
3	10	9	10	7	7	7	9	10	9	7 = 85
4	10	10	9	7	9	6	7	10	9	9 = 86
5	10	10	6	10	10	8	10	7	10	9 = 90
6	9	8	7	8	7	9	10	6	8	7 = 79
7	10	8	9	9	8	10	9	8	6	9 = 86
8	10	7	8	9	10	9	10	10	6	8 = 87
9	8	8	8	6	10	9	7	9	10	7 = 82
10	10	6	9	10	9	8	7	10	9	9 = 87
Total										841

It will be observed that seventy of the 100 shots were bullseyes; twenty-nine of the shots were tens, or in the $3\frac{36}{100}$ circle. The first ten shots broke all previous ten-shot records; the fifth string counted ninety, and was at that time the best ten-shot record at fifty yards. The aggregate of 841 for the 100 shots was fifty points over his previous record, and fifty-nine points more than had ever been secured by any other individual in a 100 shot match.

This 100-shot record was unbroken until November 4, 1887; but on May 21, 1887, Mr. W. W. Bennett broke the ten-shot fifty yards' record on the Standard American target, by recording the following score at Walnut Hill:—

10 8 10 6 10 7 10 10 10 10 = 91

On November 4, 1887, Mr. F. E. Bennett fired 100 shots at fifty yards, with a Smith & Wesson Russian model, .44 caliber army revolver, with factory ammunition,

with the declared object of breaking the 100-shot record. He scored the following result: —

1	7	8	10	10	9	7	10	7	9	10 = 87
2	8	9	8	9	7	10	8	6	9	9 = 83
3	6	10	9	8	10	10	9	8	10	7 = 87
4	8	9	10	9	6	10	7	10	8	8 = 85
5	7	9	8	8	9	5	6	9	10	7 = 78
6	9	10	8	7	10	10	8	10	6	9 = 87
7	10	9	9	8	10	10	10	7	7	9 = 89
8	10	9	9	7	9	9	7	10	8	7 = 85
9	9	10	7	9	10	7	8	9	7	10 = 86
10	10	8	9	10	8	8	10	9	9	9 = 90
Total										857

This score was sixteen points higher than any previous record.

On November 14, 1887, a second match was shot by him, under similar conditions as the first, resulting as follows: —

1	7	9	10	10	9	8	10	8	8	6 = 85
2	9	9	10	10	9	10	9	10	9	7 = 92
3	10	9	10	10	8	9	10	9	9	7 = 91
4	7	10	9	8	10	8	8	8	10	7 = 85
5	7	9	9	10	8	10	10	10	9	9 = 91
6	10	8	10	8	10	7	9	10	7	9 = 88
7	7	8	8	8	9	9	7	10	8	7 = 81
8	7	9	10	5	9	8	8	9	9	9 = 83
9	9	9	10	10	7	10	10	10	9	8 = 92
10	7	10	9	9	7	10	9	10	8	10 = 89
Total										877

This aggregate being twenty points higher than any previous record.

On November 25, 1887, Mr. F. E. Bennett fired 100 shots, under similar conditions, the 10-shot aggregate being: —

85 89 87 86 88 81 95 89 = 852

He fell short of the 100-shot record, but broke the 10-shot record by the following score : —

10 10 10 9 9 10 9 10 9 9 = 95

In November, 1887, a wager was made that Mr. F. E. Bennett would equal or surpass 841 points or better for

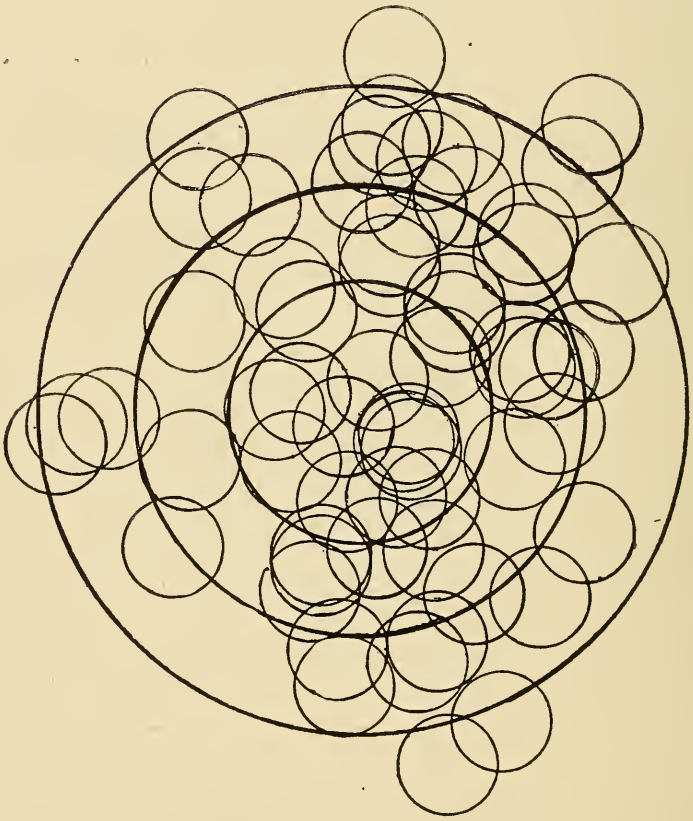

Fig. 103. — Sixty consecutive shots at twenty-five yards, with a Smith & Wesson revolver, by Mr. F. B. Crowninshield. Target full size. Shot in gallery of Boston Athletic Club.

six consecutive days, firing 100 shots a day at fifty yards, on the Standard American target, using factory ammu-

nition. He commenced his task December 5, and following is the score in detail: —

December 5, 1887.

1	6	10	8	10	7	10	10	10	10	10 = 91
2	8	10	9	10	7	9	9	9	10	8 = 89
3	9	10	10	6	9	10	9	10	10	10 = 93
4	10	9	9	6	10	10	10	8	9	9 = 90
5	8	10	7	6	9	8	9	9	10	9 = 85
6	8	9	9	10	10	10	10	10	10	8 = 94
7	7	9	10	10	6	9	10	8	7	6 = 82
8	10	10	9	10	7	9	8	9	7	9 = 88
9	10	10	8	8	10	9	10	10	7	8 = 90
10	9	7	7	10	10	8	8	9	9	7 = 84
Total										886

December 6, 1887.

1	5	7	10	9	10	10	10	9	9	8 = 87
2	8	9	10	7	6	9	10	10	10	10 = 89
3	8	9	10	8	10	7	8	10	10	9 = 89
4	8	9	10	7	7	8	9	9	8	10 = 85
5	9	10	7	10	10	10	10	10	10	8 = 94
6	9	9	10	10	0	7	10	9	9	10 = 83
7	6	7	9	10	9	9	10	9	9	6 = 84
8	8	9	10	9	9	10	10	8	6	8 = 87
9	10	10	8	9	10	10	10	9	8	8 = 92
10	8	6	7	8	7	9	10	8	6	8 = 77
Total										867

December 7, 1887.

1	10	8	9	0	10	6	6	9	6	7 = 71
2	7	8	10	8	7	8	9	8	8	10 = 83
3	7	9	6	7	10	7	8	8	9	7 = 78
4	7	9	10	7	9	10	7	9	10	6 = 84
5	8	8	8	9	9	8	8	10	9	9 = 86
6	10	7	8	10	10	10	10	9	10	10 = 94
7	7	9	8	10	9	8	10	6	9	10 = 86
8	8	7	8	7	7	10	9	9	8	7 = 80
9	9	9	9	9	10	8	8	10	9	9 = 90
10	8	10	8	8	7	8	8	8	8	7 = 80
Total										832

December 8, 1887.

1	8	7	10	9	8	9	7	7	10	8 = 83
2	8	7	7	9	9	8	7	10	9	8 = 82
3	10	5	9	8	5	10	8	9	8	6 = 78
4	10	6	9	10	8	9	9	9	10	10 = 90
5	8	10	10	8	10	7	10	9	9	10 = 91
6	7	6	9	9	6	10	10	10	7	10 = 84
7	7	8	7	9	8	8	8	8	7	10 = 80
8	9	7	8	10	10	10	10	6	10	10 = 90
9	9	8	9	9	7	8	9	6	9	10 = 84
10	5	6	8	10	7	6	9	10	10	10 = 81
Total										843

December 9, 1887.

1	10	7	9	9	7	10	10	8	7	8 = 85
2	7	9	8	10	7	9	10	7	9	8 = 84
3	8	8	10	9	9	10	9	8	9	10 = 90
4	7	8	10	9	9	10	10	7	10	10 = 90
5	7	8	10	8	9	9	10	9	9	8 = 87
6	10	8	9	9	9	8	8	9	10	6 = 86
7	9	10	7	9	8	10	10	9	8	8 = 88
8	10	7	10	8	9	8	8	10	8	7 = 85
9	9	8	9	9	7	9	8	8	10	10 = 87
10	7	7	9	8	10	7	10	8	10	10 = 86
Total										868

December 10, 1887.

1	9	8	8	9	10	10	9	9	10	8 = 90
2	7	10	7	10	8	10	10	7	9	9 = 87
3	10	8	9	6	9	8	7	8	8	10 = 83
4	10	9	10	10	9	8	10	7	10	9 = 92
5	9	9	7	10	9	9	8	10	8	8 = 87
6	10	8	10	10	10	9	7	9	9	8 = 90
7	9	10	9	10	10	7	6	9	9	8 = 87
8	9	7	10	6	10	8	10	9	8	8 = 85
9	9	10	6	9	10	10	10	9	10	10 = 93
10	6	7	9	9	9	5	8	10	10	9 = 82
Total										876

The shooting of Mr. F. E. Bennett attracted the attention of Chevalier Paine, who, on December 9, fired

100 shots, using a .38/44 caliber Smith & Wesson revolver, this arm being the same as the .44 caliber in exterior, but is bored .38 caliber instead of .44. It has a straight shell, which extends entirely through the cylinder, coming flush with the end of cylinder. This was a special arm, made to order, and took specially prepared ammunition. Only the aggregate for 100 shots was preserved, which was 878 points. This was one point higher than had previously been scored.

On December 13 Chevalier Paine fired 190 shots with a Smith & Wesson .44 caliber revolver; but as 100-shot records were being compared, we take the first 100 shots which made the most favorable showing, and the 10-shot strings aggregated as follows: —

90 92 87 89 89 85 92 85 85 91 = 882

The next trial was on Thursday, December 15, using same revolver and ammunition, with the following result: —

92 89 89 89 86 88 85 85 83 85 = 871

On December 17 he again faced the target, firing 210 shots, the first and second 100 shots showing the following results: —

94 96 90 85 87 86 81 92 88 87 = 886
89 96 90 89 91 86 87 85 89 86 = 888

The last 100-shot score of 888 being two points more than any previous record. The 10-shot record was also broken by two strings, which aggregated 96 points; higher by one point than any previously known record.

On December 22 Chevalier Paine fired 100 consecutive shots in the presence of the author, attempting to beat all previous records. The shooting was done at the Narragansett Gun Club grounds, at Providence, R. I.

The revolver used was the Smith & Wesson Russian model .44 caliber, with factory ammunition. The score was as follows: —

1	8	8	10	10	8	9	10	10	9	9 = 91
2	9	9	7	10	9	9	7	7	10	10 = 87
3	10	10	8	7	9	8	10	10	9	8 = 89
4	10	9	8	10	10	10	9	10	7	9 = 92
5	7	9	10	10	8	9	8	8	7	10 = 86
6	10	7	8	9	10	10	10	9	10	9 = 92
7	10	8	10	10	10	10	8	9	9	10 = 94
8	8	9	10	10	10	7	10	9	10	10 = 93
9	10	8	9	9	10	8	10	8	7	10 = 89
10	10	8	8	9	10	10	9	8	9	01 = 91
Total										904

This aggregate raised the record sixteen points.

It was generally supposed, when Chevalier Ira Paine secured an aggregate of 904 points on the Standard American target at fifty yards with a Smith & Wesson .44 caliber revolver, that the 100-shot record would not be disturbed for some time. Mr. W. W. Bennett repeatedly stated that he would never attempt to break his brother's record of 886 points, but would contest against the record of any other individual. When it was announced that Chevalier Paine had secured 904 points, Mr. W. W. Bennett quietly announced his intention of surpassing this record, earnestly went to work, and, in the presence of reliable witnesses, rolled up the unprecedented record of 914 points, — ten points higher than had ever been previously secured, and twice during the shooting equaled the best ten-shot record of ninety-six points.

He shot at Walnut Hill range December 23, 1887, using a .44 caliber, single-action Smith & Wesson Russian model army revolver, loaded with factory ammunition of Union

Metallic Cartridge Co. make. The scores in detail are as follows: —

1.	.	.	9	10	10	10	10	8	9	10	10	10 = 96
2.	.	.	8	10	10	9	9	9	9	10	8	7 = 90
3.	.	.	8	9	10	10	9	9	10	8	9	10 = 92
4.	.	.	8	9	10	9	10	7	10	9	8	10 = 90
5.	.	.	10	9	9	10	10	10	10	10	10	8 = 96
6.	.	.	9	10	8	10	7	10	9	10	10	9 = 92
7.	.	.	10	10	9	7	10	7	9	9	10	8 = 89
8.	.	.	8	7	8	9	10	10	9	10	7	8 = 86
9.	.	.	9	8	10	8	10	9	10	10	10	9 = 93
10.	.	.	10	7	9	10	9	9	9	10	9	8 = 90
Total	.	.	.	.	.	.	.	.	.	.	.	914

It should here be recorded that Chevalier Paine on his first and second trial cleaned his revolver between every ten shots. Mr. F. E. Bennett in all of his shooting cleaned only between each ten shots. In the balance of Chevalier Paine's shooting he insisted on cleaning his revolver between every five or six shots; and Mr. W. W. Bennett, after Chevalier Paine departed from the custom of cleaning between each ten shots, ran a brush through the inside of his barrel after every shot. There being no established rules for pistol and revolver shooting in regard to cleaning, the results were accepted as records of performances with revolvers. It is also believed that Chevalier Paine's shooting, as well as Mr. W. W. Bennett's, and a portion of Mr. F. E. Bennett's shooting, was done with a trigger pull of less than three pounds.

It will be seen that within a period of two years the possibilities of the revolver had been proved to be considerably beyond what the manufacturers of the arms, the makers of the ammunition, and the experts using the weapons supposed were its capabilities.

The first 100-shot record was 791 points, the last 914 points, or an increase of 123 points.

In order to carry the shooting at fifty yards from its commencement on the Standard American target to latest

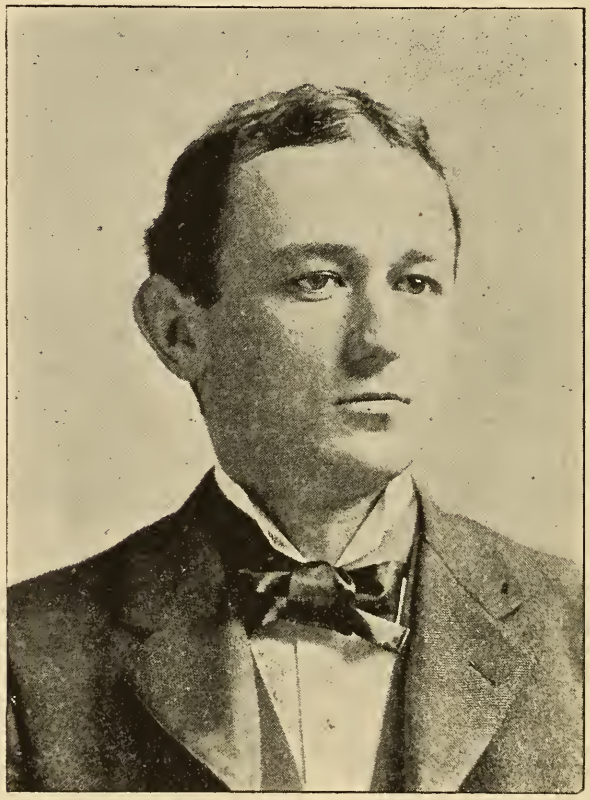

Fig. 104. — Mr. F. B. Crowninshield, Boston. Amateur Pistol and Revolver Shot.

known record with no diversion, the author now finds it necessary to go back several months to chronicle an event worthy of note.

It has been stated that the first revolver competition on the Standard American target was shot at twenty-five yards, and it has been shown that the distance was too short for that target. When the programme of the 1886

annual meeting at Creedmoor was being arranged, it was proposed to use the 200-yard Standard American target at thirty yards. The author urged the gentlemen in charge of this tournament to use the 100-yard rifle target at this distance, and by showing what had been accomplished on the 200-yard target, it convinced them that a 100-yard rifle target with a four-inch bullseye was better for revolver or pistol shooting at thirty yards; and that target and distance were selected for the revolver match at Creedmoor, in 1887, and many of the rifle and pistol clubs throughout the country arranged similar matches. The first record established on the thirty-yard pistol target was in a five-shot reëntry match at the spring meeting of the Massachusetts Rifle Association, in June, 1887. The score of forty-three out of a possible fifty was made by Mr. W. W. Bennett, and was the highest score made during the three days' tournament. It was the opinion of a majority of revolver shooters at that time that this target at thirty yards was a difficult one to roll up a high score on, and that forty for five shots and eighty for ten shots was good shooting. At the annual meeting of the National Rifle Association at Creedmoor, in September, 1887, the highest scores recorded at thirty yards were by Mr. J. T. B. Collins, who secured three aggregates of forty-four, and Mr. G. L. Garrigues, who also secured one score of forty-four, this being the highest aggregate secured in five shots at that time.

At the fall meeting of the Massachusetts Rifle Association, Mr. F. E. Bennett won the first prize in the revolver competition, with the following scores: —

9	10	9	9	7	= 44
8	10	10	9	8	= 45
10	8	7	10	10	= 45
9	9	9	8	10	= 45
10	10	10	8	10	= 48

This made forty-eight, the best five-shot record.

The next event at this range was the recording of the following ten-shot score at Walnut Hill on October 12, 1887, by Mr. F. E. Bennett: —

10 9 10 9 8 8 10 7 10 9 = 90

This being the best ten-shot record. This shooting was followed by Chevalier Ira Paine, who, in November, 1887, recorded the same aggregate at Walnut Hill.

A week later Mr. F. E. Bennett recorded in a regular match at Walnut Hill an aggregate of 91.

On April 4, 1888, Mr. F. E. Bennett made at the Massachusetts Rifle Gallery, Boston, at thirty yards, Standard American target, 100 out of a possible 100, which is the best known score on record at that distance. This score was shot with a light charge and indoors, and is the only one known to be recorded in this volume made with any but factory charges and indoors.

The great Paine-Bennett match was the outcome of a prolonged newspaper controversy between Mr. F. E. Bennett and Chevalier Ira Paine. The conditions of the match were as follows: —

CONDITIONS OF THE MATCH.

It is agreed by the undersigned to shoot a match with revolvers for one thousand dollars ($1000) a side, under the following conditions: 600 shots, 100 shots a day for six consecutive days, beginning Monday, June 4, 1888, and ending Saturday, June 9, 1888, at a distance of fifty measured yards, on the Standard American 200-yard rifle target. Revolvers to be the Smith & Wesson .44 caliber, Russian model, with three-pound pull, and not over six and one-half inch barrel; ammunition to be factory made, in unbroken boxes, of any of the following companies: United States Cartridge Company, Union Metallic Cartridge Company, or the Winchester Repeating Arms Company. The match to be shot at Springfield, Mass. All conditions of the match not herein

specified to be governed by the shooting rules of the National Rifle Shooting Association. Each contestant to choose a judge, these two choosing a referee. If the referee's decision is disputed, the secretary of the National Rifle Association of America shall make a decision which shall be final. In addition to the stakes, the match to be for the championship of America. Two hundred and fifty dollars a side is hereby deposited with the Boston Herald, which is agreed upon as stakeholder. The balance of $750 a side shall be placed with the stakeholder on or before Monday, May 28; but it is understood that $250 each, in addition to the amount now on deposit, shall be deposited on or before Saturday, April 21, 1888. The match shall be play or pay; that is, either party failing to observe any of the conditions herein agreed to shall forfeit all money deposited, and the stakeholder is hereby authorized to pay over the same to the contracting party who fulfils the agreement.

(Signed) CHEVALIER IRA PAINE.
FRED E. BENNETT.

RESULT OF THE MATCH.

	Paine.	Bennett.
June 4, 1888, Springfield, Mass.	867	837
June 5, 1888, Springfield, Mass.	879	887
June 6, 1888, Springfield, Mass.	860	866
June 7, 1888, Providence, R. I.	872	879
June 8, 1888, Providence, R. I.	Withdrew	878
June 9, 1888, Providence, R. I.	Withdrew	746
	3,478	5,093

It will be noticed in the above that Paine withdrew on the fifth day of the contest. He made a protest, and, according to the conditions of the match, was referred to the National Rifle Association of America, which decided against the protest, and the match was given to F. E. Bennett, who with it received the championship of America, which he holds at the present time.

Some of the shooting in practice before the match at Walnut Hill, in 100-shot series, was undoubtedly the

Fig. 105. — Mr. F. E. Bennett. Winner of the Revolver Championship of America.

finest ever done in the world with a revolver, and four of the 100-shot series witnessed by the writer are given, believing that they will long stand unequaled.

This shooting was done under favorable conditions; that is, a perfect revolver was used, which was correctly sighted, and had a fine trigger pull; but full charge factory ammunition was shot.

Score of Mr. F. E. Bennett, shot in practice at Walnut Hill: —

9	9	10	9	9	9	10	8	9	9	= 91
10	10	9	10	8	7	10	10	7	10	= 91
8	8	8	10	8	9	10	8	10	8	= 87
10	10	10	10	10	7	10	10	9	9	= 95
9	10	10	10	9	8	8	7	7	9	= 87
9	9	10	10	8	7	10	10	9	10	= 92
8	9	9	10	10	10	10	10	10	10	= 96
8	9	9	10	10	8	10	8	10	8	= 90
9	9	9	9	10	9	10	8	10	8	= 91
10	7	7	10	9	6	10	10	8	10	= 87
										— 907
9	8	10	7	8	10	8	9	9	10	= 88
9	10	8	9	9	9	10	9	10	8	= 91
9	9	10	7	10	10	8	10	8	8	= 89
9	9	10	9	10	8	8	10	10	7	= 90
10	7	9	9	8	10	8	9	8	9	= 87
9	10	10	10	9	10	10	9	10	10	= 97
10	8	10	8	8	10	9	6	10	8	= 87
10	9	10	9	8	9	10	9	10	9	= 93
10	9	10	10	10	9	10	10	10	10	= 98
9	9	8	8	8	10	9	8	10	10	= 89
										— 909
9	10	10	9	7	10	10	10	9	9	= 93
8	10	10	10	10	10	10	7	8	9	= 92
10	10	8	7	7	9	10	9	10	10	= 90
10	8	9	10	10	7	8	9	9	10	= 90
10	8	9	10	9	8	9	10	10	10	= 93
9	10	9	8	9	9	10	10	9	10	= 93
10	8	9	10	10	7	10	10	10	10	= 94
8	9	9	8	10	10	9	7	8	10	= 88
9	10	9	9	10	10	6	9	9	9	= 90
10	9	10	10	10	7	10	9	10	7	= 92
										— 915
7	9	10	10	9	9	9	10	10	8	= 91
10	9	7	10	10	8	7	10	10	9	= 90
9	10	8	9	7	8	9	8	9	9	= 86
9	9	9	9	9	10	10	9	8	10	= 92
10	10	10	10	9	9	9	9	10	10	= 96
8	9	10	10	8	7	9	10	9	8	= 88
10	10	10	8	9	8	10	10	9	10	= 94
10	10	7	10	9	10	9	7	9	9	= 90
8	10	8	9	9	10	10	9	10	8	= 91
8	9	10	10	8	10	10	10	9	10	= 94
										— 912

The popularity of revolver shooting developed great proficiency among many amateurs of this country. Conspicuous among them were Massachusetts shooters and California shooters, and one Sergeant W. C. Johnston, Jr.,

Fig. 106. — Sergeant W. C. Johnston, Jr. Credited with the best known ten shot record with revolver at fifty yards.

of the National Guard of Massachusetts, succeeded on July 7, 1888, in making a perfect score, 100 out of a possible 100, placing the ten shots of his score in the inner carton of the Standard American target, which is but $3\frac{36}{100}$ inches in diameter. The shooting was done at fifty yards with a regulation revolver with fine sights. It

is the first and only perfect score made in America. Not only did he accomplish this feat, but after the completion of the score he made another trial and recorded six more consecutive tens, thus making the greatest run of tens on record which has never since been equaled. The shooting was duly witnessed by reliable persons, and Sergeant Johnston was considered a very fine shot both with a rifle and revolver. Having been a representative of the American military rifle team which visited England, his record was recognized by the press and the shooting fraternity. Sergeant Johnston himself admitted that he was holding well, but believes that there was a certain amount of good fortune which accompanied his skill.

The revolvers used in the great Paine-Bennett match were the regulation army revolvers of .44 caliber, but they had fine sights affixed to them.

As the match created a great deal of interest in revolver shooting, various methods were resorted to to make high scores. Revolver shooting also became popular in rifle galleries, and as a result, trigger pulls were reduced to a very light pull, even to the point of danger from accidental discharge. Shells were loaded with light charges, and a great many amateurs succeeded in recording high scores, shooting at various distances from ten yards upward.

This jockeying with revolvers had the effect of lessening the popularity of the sport, and many ambitious amateurs posed before the country as makers of fine revolver records, but they were made, in many instances, with what is termed by some "toy" charges. They were able to shoot such light charges with light trigger pulls and a deliberate aim, but were unable to shoot with anything like such accuracy the regular weapon with a three-pound trigger pull and a full charge. Such shooting is undoubtedly meritorious, but I have always considered

that all revolver shooting with reduced charges, fine sights, and deliberate aim, especially if the aim be unlimited as to time, should be classed as pistol shooting; and such

Fig. 107. — Ten shots at fifty yards by Serg't. J. J. Mountjoy. Shot with a Wurfflein pistol at Philadelphia, Penn., Aug. 4, 1893. Reduced one quarter.

views, I am glad to say, are approved by many intelligent sportsmen, and members of the volunteer forces in this country.

CHAPTER XII.

SOME PERFORMANCES WITH THE PISTOL.

THERE are three reasons which, combined, made pistol shooting popular in America. First, the inexpensiveness of the ammunition for the pistol, as compared with that for the revolver. Second, the ability to shoot more shots with accuracy, without cleaning, in a pistol, than can be done with a revolver. Third, better shooting can be done by the average person with a pistol than with a revolver. When these facts were known the pistol became the more popular arm. The revolver still holds its popularity; but it is reserved for more practical shooting, and the pistol is the chosen arm for recreation.

On September 13, 1888, the writer made a careful test of .22 caliber pistols at Walnut Hill, testing the same from a rest; and it was shown that a Stevens pistol with the Union Metallic Cartridge Company's long-rifle cartridge would shoot finer than any target in use among pistol shooters would measure. In a series of shots fired at fifty yards, the lateral deviation was $1\frac{5}{8}$ inches by one inch perpendicular. This so clearly demonstrated the great accuracy of the single-shot pistol that some of the expert marksmen were tempted to make a trial of the arm.

On September 22, 1888, Mr. F. E. Bennett fired 100 consecutive shots at Walnut Hill on the Standard American target at fifty yards, scoring 906 points. There were ninety-seven bullseyes out of 100 shots. The three shots that were not bullseyes were in the seven-ring.

In the same year at the fall meeting of the Massachusetts Rifle Association, there was a match which called for

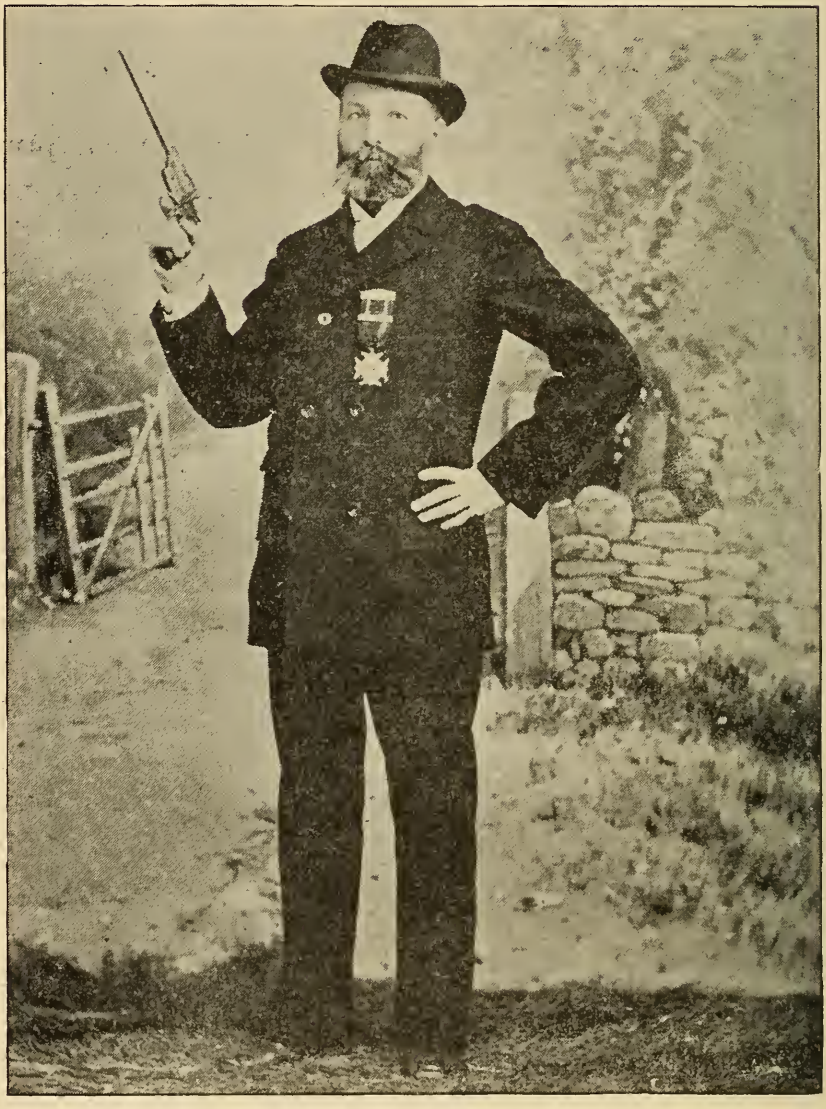

Fig. 108. — Mr. Henry S. Harris, Boston. Winner of Pistol Championship of Massachusetts. In a series of contests extending from June 16, 1892, to Dec. 30, 1893; Mr. Harris winning ten of the sixteen matches.

five scores of five shots each. The winner of the first prize was Mr. W. W. Bennett, whose score aggregated 239 points. In this match Mr. J. B. Fellows made a perfect score of five tens or fifty out of a possible fifty. Both he and Mr. Bennett used Stevens .22 caliber pistols with ten-inch barrels and the Union Metallic Cartridge Company's long-rifle cartridge. This may be said to be the introduction of pistol shooting in America at a range of fifty yards, and it also meant the revival of the sport of pistol shooting which had been intermittingly popular, but seldom before was the range greater than fifteen or twenty yards.

I have kept a careful record of the performances out of doors since that time, with some few records of indoor shooting, but rather than declare the contents of this chapter a perfect record of pistol shooting in America, I choose to leave it on record as some of the best known performances upon which there is not a shadow of doubt as to their genuineness.

10-SHOT RECORDS, AT 50 YARDS, ON STANDARD AMERICAN TARGET.

		1889.	
Jan.	12, Wilmington, Del.,	E. J. Darlington	96 95
Nov.	10, Wilmington, Del.,	E. J. Darlington	95 95
Dec.	3, " "	" "	95
		1890.	
Feb.	15, Walnut Hill, Mass.,	H. S. Harris	96
Mar.	15, " " "	J. B. Fellows	94
"	26, " " "	H. S. Harris	94
April	6, Wilmington, Del.,	E. J. Darlington	96 95 95
May	12, " "	O. E. Garmency	95
"	12, " "	H. Simpson	94
June	2, " "	E. J. Darlington	96
"	14, Walnut Hill, Mass.,	H. S. Harris	96
July	5, Haverhill, Mass.,	H. E. Tuck	97 96 95 93
"	5, Wilmington, Del.,	E. J. Darlington	*99 96 93 91

* Highest known score with a pistol. Equaled by H. S. Harris, December 31, 1890, and January 6, 1894.

July	26,	Walnut Hill, Mass.,	H. S. Harris	94						
"	26,	" " "	Maj. C. W. Hinman	93						
"	30,	" " "	H. S. Harris	94						
Aug.	2,	" " "	" "	94						
"	9,	" " "	" "	93						
"	11,	Wilmington, Del.,	E. J. Darlington	95						
"	13,	Walnut Hill, Mass.,	H. S. Harris	93						
Sept.	10,	Wilmington, Del.,	E. J. Darlington	93						
"	24,	Walnut Hill, Mass.,	H. S. Harris	94						
Oct.	4,	Wilmington, Del.,	Col. H. Simpson	93						
"	11,	Walnut Hill, Mass.,	H. S. Harris	96						
"	11,	Wilmington, Del.,	E. J. Darlington	96	95					
Nov.	4,	" "	" "	94	94	93	92	91	90	
"	28,	" "	" "	93						
"	10,	" "	" "	95	95					
"	27,	Walnut Hill, Mass.,	H. S. Harris	93						
"	29,	" " "	" "	93						
Dec.	3,	Wilmington, Del.,	E. J. Darlington	95						
"	20,	" "	" "	95						
"	25,	" "	" "	94	93	92	92	90		
"	31,	Walnut Hill, Mass.,	H. S. Harris	*99						

1891.

Jan.	10,	Wilmington, Del.,	E. J. Darlington	93						
"	31,	Walnut Hill, Mass.,	Maj. C. W. Hinman	94						
Feb.	7,	" " "	" " "	93						
"	11,	" " "	H. S. Harris	93						
"	21,	" " "	" "	93						
"	14,	Wilmington, Del.,	E. J. Darlington	93	91					
"	28,	" "	" "	96						
March	7,	" "	" "	93						
"	4,	Walnut Hill, Mass.,	Maj. C. W. Hinman	93						
"	28,	" " "	" " "	96						
April	3,	Haverhill, Mass.,	B. Dimock	96						
"	18,	Wilmington, Del.,	H. Simpson	93						
"	18,	" "	E. J. Darlington	93						
"	22,	Walnut Hill, Mass.,	H. S. Harris	94						
"	25,	" " "	Maj. C. W. Hinman	93						
May	2,	" " "	H. S. Harris	93						
July	18,	Haverhill, Mass.,	B. Dimock	94						
"	23,	Philadelphia, Penn.,	E. T. Travis	92						
"	25,	Wilmington, Del.,	E. J. Darlington	93	92	91	90	91		
Aug.	22,	" "	" "	96	94					
"	29,	" "	" "	95	93	91				
Sept.	5,	" "	" "	92	92	92				
"	12,	" "	" "	92	92	91				
"	19,	Walnut Hill, Mass.,	H. S. Harris	95						
Oct.	3,	" " "	J. B. Fellows	93						
"	3,	Wilmington, Del.,	E. J. Darlington	92	91	90	90			
"	10,	Walnut Hill, Mass.,	H. S. Harris	93						

* Best 10-shot score with single-shot pistol on record, equaling score of E. J. Darlington, July 5, 1890.

Oct.	17,	Wilmington, Del.,	H. Simpson.....97
"	17,	" "	E. J. Darlington.....93
"	17,	Walnut Hill, Mass.,	H. S. Harris.....93
"	31,	Wilmington, Del.,	E. J. Darlington.....93
"	28,	Walnut Hill, Mass.,	H. S. Harris 94
"	31,	" " "	" " 94
"	31,	" " "	J. B. Fellows.....93
Nov.	7,	" " "	H. S. Harris.....96
"	14,	" " "	J. B. Fellows.....94
"	14,	Wilmington, Del.,	E. J. Darlington.....93 93 90 90
"	21,	Walnut Hill, Mass.,	H. S. Harris.....94
"	21,	" " "	J. B. Fellows.....93
"	23,	" " "	H. S. Harris.....93
"	23,	" " "	" " 93
"	27,	Wilmington, Del.,	E. J. Darlington.....94
Dec.	5,	Walnut Hill, Mass.,	H. S. Harris.....95
"	25,	Wilmington, Del.,	E. J. Darlington.....95
"	25,	Walnut Hill, Mass.,	E. E. Patridge.....95
"	25,	" " "	Sumner Paine.....95
"	25,	" " "	H. S. Harris.....93
"	25,	" " "	B. Dimock.....93
"	19,	" " "	E. E. Patridge.....93
"	26,	" " "	" " 95

1892.

Jan.	9,	Walnut Hill, Mass.,	Sumner Paine.....93
"	16,	" " "	E. E. Patridge.....94 93
"	30,	" " "	H. S. Harris.....94
Feb.	6,	" " "	" " 93 93
"	6,	Wilmington, Del.,	E. J. Darlington.....96
"	13,	Walnut Hill, Mass.,	H. S. Harris.....95 93
"	29,	" " "	E. E. Patridge.....95 93
"	20,	" " "	H. S. Harris.....93
"	22,	" " "	Sumner Paine.....94
"	22,	" " "	E. E. Patridge.....96 93
"	27,	" " "	Maj. C. C. Foster.....93
March	5,	" " "	" " " 93
"	12,	" " "	J. B. Fellows.....95
"	16,	" " "	H. S. Harris.....95 93 93
"	19,	" " "	E. E. Patridge.....94
"	26,	" " "	" " 94
"	26,	" " "	H. S. Harris.....94
"	26,	" " "	J. B. Fellows.....93
"	30,	" " "	E. E. Patridge.....94 94
"	30,	" " "	H. S. Harris.....93
April	2,	Wilmington, Del.,	E. J. Darlington.....93
"	13,	Walnut Hill, Mass.,	J. B. Fellows.....94
"	7,	" " "	E. E. Patridge.....95
"	13,	" " "	F. B. Crowninshield...95 94
"	16,	" " "	H. S. Harris.....94 94
"	13,	" " "	Sumner Paine.....94
"	23,	" " "	" " 96
"	23,	" " "	F. B. Crowninshield...94 94
"	27,	" " "	H. S. Harris.....96 94
"	27,	" " "	Sumner Paine.....93

Fig. 109. — Score ninety-nine out of a possible hundred. Shot by Mr. Henry S. Harris, in Pistol Match of 1890, at Walnut Hill, Mass., with a Diamond Model Stevens Pistol and Union Metallic Cartridge Co.'s .22 caliber Long-Rifle Cartridges. Distance fifty yards; target full size. Highest score made during the year.

May	7,	Wilmington, Del.,	E. J. Darlington.....96 95
"	28,	Walnut Hill, Mass.,	F. B. Crowninshield...94
"	30,	" " "	Maj. C. W. Hinman...94
June	4,	" " "	F. B. Crowninshield...96
"	4,	" " "	Sumner Paine.....95
"	9,	" " "	H. S. Harris.....93
"	11,	" " "	F. B. Crowninshield...93
"	8,	Philadelphia, Penn.,	H. J. Mehard 94
"	11,	Wilmington, Del.,	E. J. Darlington.....93
"	17,	Philadelphia, Penn.,	H. J. Mehard 93
"	22,	Walnut Hill, Mass.,	H. S. Harris 95
July	4,	" " "	G. R. Russell.....95
"	4,	" " "	H. S. Harris.....94
"	6,	" " "	" " 93 93 94 94
"	9,	" " "	G. R. Russell.....94
"	9,	" " "	Dr. Louis Bell.....93 93
"	9,	Philadelphia, Penn.,	H. J. Mehard 96
"	2,	Walnut Hill, Mass.,	Dr. Louis Bell.....95 94
"	10,	" " "	H. S. Harris.....94
"	16,	" " "	F. B. Crowninshield...95 95
"	16,	" " "	Dr. Louis Bell.....94 94
"	16,	Wilmington, Del.,	E. J. Darlington.....93
"	23,	Walnut Hill, Mass.,	Dr. Louis Bell.....95
"	30,	Wilmington, Del.,	E. J. Darlington.....95
"	30,	Walnut Hill, Mass.,	J. E. Kelly.....93
Aug.	6,	" " "	Dr. Louis Bell.....94 93
"	16,	" " "	" " " 94 95
"	27,	" " "	" " " 95 94
Sept.	3,	" " "	" " " 95 94
"	5,	" " "	J. B. Fellows.....95
"	10,	" " "	Dr. Louis Bell.....95
"	10,	" " "	J. B. Fellows.....93
"	15,	Wilmington, Del.,	E. J. Darlington.....94 93
"	17,	Walnut Hill, Mass.,	H. S. Harris.....95
"	24,	" " "	" " 94
"	28,	" " "	" " 97 93
Oct.	8,	" " "	" " 95
"	8,	" " "	F. B. Crowninshield..93 93
"	8,	" " "	J. B. Fellows.....93
"	12,	" " "	H. S. Harris.....93
"	15,	" " "	Dr. Louis Bell.....96 93
"	14,	Wilmington, Del.,	E. J. Darlington.....94
"	21,	Walnut Hill, Mass.,	F. B. Crowninshield...93
"	29,	" " "	" " ...96 93
Nov.	19,	" " "	H. S. Harris.....93
"	24,	" " "	" " 94
Dec.	7,	" " "	Maj. C. C. Foster.....96
"	7,	" " "	H. S. Harris.....93 93 94
"	10,	" " "	Maj. C. W. Hinman..93
"	17,	" " "	G. R. Russell.....97
"	17,	" " "	J. B. Fellows.....93
"	26,	Wilmington, Del.,	E. J. Darlington.....96
"	31,	Walnut Hill, Mass.,	H. S. Harris 95 94

1893.

Jan.	7,	Walnut Hill, Mass.,	H. S. Harris.....94 93
"	18,	" " "	J. B. Fellows.....93
"	14,	" " "	H. S. Harris.....96
"	21,	" " "	" " 95
"	21,	" " "	J. B. Fellows.....93
Feb.	4,	" " "	B. Dimock.....93
"	4,	" " "	J. B. Fellows.....93
"	18,	" " "	" " 93
"	22,	" " "	H. S. Harris.....94
"	23,	" " "	J. B. Fellows.....94 93
"	23,	" " "	H. S. Harris.....95 94 93
"	23,	" " "	Maj. C. W. Hinman....94
"	21,	" " "	H. S. Harris.....94
"	25,	Wilmington, Del.,	E. J. Darlington.....93
March	1,	Walnut Hill, Mass.,	H. S. Harris.....93 93
"	21,	" " "	J. B. Fellows.....95 95
"	15,	" " "	H. S. Harris.....94 93 93
"	18,	" " "	" " 95 90
"	18,	" " "	J. B. Fellows.....95 94
"	18,	" " "	Maj. C. W. Hinman...93
"	18,	" " "	Maj. C. C. Foster.....93
"	18,	" " "	H. S. Harris.....95 96 96
"	25,	" " "	" " 94 94 94
April	9,	San Francisco, Cal.,	F. O. Young.....93
"	12,	Walnut Hill, Mass.,	H. S. Harris.....94 94
"	23,	Philadelphia, Pa.,	H. J. Mehard.....95
"	29,	Walnut Hill, Mass.,	J. B. Fellows.....94
May,	20,	" " "	H. S. Harris.....93 94 95
"	24,	" " "	" " 94 95
"	30,	" " "	" " 95
June	2,	" " "	Dr. Louis Bell.....95
"	6,	Haubstadt, Ind.,	G. C. Littlepage.....93
"	10,	Walnut Hill, Mass.,	H. S. Harris.....93
"	17,	" " "	Maj. C. W. Hinman...93
"	24,	" " "	H. S. Harris.....94
"	24,	" " "	B. Dimock.....93
"	24,	" " "	J. B. Fellows.....93
"	24,	" " "	F. O. Young.....93
July	4,	Haubstadt, Ind.,	G. C. Littlepage.....96
"	5,	Springfield, Mass.,	C. S. Axtell.....92
"	8,	" "	J. Goodrich.....93
"	8,	Walnut Hill, Mass.,	F. B. Crowninshield...95
"	15,	Springfield, Mass.,	Z. C. Talbot.....91
"	20,	Haverhill, Mass.,	B. Dimock.....93 95 98
"	22,	Walnut Hill, Mass.,	A. L. Brackett.....91
"	29,	" " "	J. B. Fellows.....92
"	29,	" " "	A. L. Brackett.....91
Aug.	4,	Philadelphia, Penn.,	J. J. Mountjoy.....94
"	5,	Walnut Hill, Mass.,	H. S. Harris.....93
"	5,	" " "	A. L. Brackett.....91
"	9,	Springfield, Mass.,	C. S. Axtell.....91
"	12,	Walnut Hill, Mass.,	Maj. C. W. Hinman...93
"	26,	Wilmington, Del.,	E. J. Darlington.....94 92

Sept.	4,	Walnut Hill, Mass.,	H. S. Harris	95				
"	6,	Springfield, Mass.,	C. S. Axtell	92	91			
"	13,	" "	" "	94				
"	16,	" "	Z. C. Talbot	92				
"	20,	" "	C. S. Axtell	93				
"	30,	Wilmington, Del.,	E. J. Darlington	91	92	91	90	
"	30,	Walnut Hill, Mass.,	Z. C. Talbot	93				
Oct.	7,	" " "	H. S. Harris	94				
"	7,	" " "	F. B. Crowninshield	93				
"	14,	" " "	H. S. Harris	96				
"	14,	" " "	C. F. A. Armstrong	95				
"	20,	" " "	H. S. Harris	94				
"	20,	" " "	C. F. A. Armstrong	92				
"	21,	" " "	J. B. Fellows	94				
"	21,	" " "	H. S. Harris	94				
Nov.	4,	" " "	" "	95				
"	11,	" " "	Maj. C. W. Hinman	96				
"	11,	" " "	J. B. Fellows	95	93			
"	11,	" " "	H. S. Harris	94	93			
"	11,	" " "	F. C. Pearl	91	90			
"	18,	" " "	C. F. A. Armstrong	93				
"	18,	" " "	J. Hadley	93				
"	25,	" " "	H. S. Harris	94				
"	30,	" " "	" "	93	92			
Dec.	2,	" " "	" "	94	94			
"	2,	" " "	F. C. Pearl	93				
"	2,	" " "	J. Hadley	92				
"		Springfield, Mass.,	C. S. Axtel	*97				
"	23,	Walnut Hill, Mass.,	H. S. Harris	95				
"	25,	" " "	" "	93	95			
"	30,	" " "	" "	94	95			

1894.

Jan.	6,	Walnut Hill, Mass.,	H. S. Harris	99					

100 CONSECUTIVE SHOTS, AT 50 YARDS, ON STANDARD AMERICAN TARGET, SHOT FOR RECORD.

1888.

Nov. 3, Walnut Hill, Mass., A. L. Brackett, 853.

Nov. 10, Walnut Hill, Mass., F. E. Bennett, 934, which was the best professional record at that time.

1889.

Jan. 21, Williamsport, Penn., N. A. Hughes, 821.

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* Date not known.

Fig. 110. — Mr. W. W. Bennett. Professional Revolver and Pistol Shot.

1890.

May 19, Wilmington, Del., E. J. Darlington, 889, 94 bullseyes out of 100 shots.

July 28, Castile, N. Y., W. E. Carlin, 913, run of 55 consecutive bullseyes.

Sept. 5, Walnut Hill, Mass., F. E. Bennett, 929.

Sept. 10, Walnut Hill, Mass., F. E. Bennett, 936, the best known record.

1892.

July, 7, Walnut Hill, Mass., Dr. Louis Bell, 901.

1893.

Oct. 13, Walnut Hill, Mass., C. F. A. Armstrong, 859.

Fig. 111.—Ten consecutive shots at fifty yards, by Mr. F. B. Crowninshield, at Walnut Hill, Mass., June 4, 1892, with a Stevens Gould Model Pistol, .22 caliber; score 96. Target reduced to one quarter original size.

RABBETH-FIELD TARGET.

1889.

Jan. 19, Troy, Kan., Dr. R. S. Dinsmore, 903.

100-SHOT MATCHES, 50 YARDS, STANDARD AMERICAN TARGET.

1890.

May 5, Bellevue, Ky., Ben. Copeland, 879.
" 5, " " Chas. Wellinger, 852.
" 5, " " E. M. Brumbach, 824.

50 CONSECUTIVE SHOTS, AT 50 YARDS, ON STANDARD AMERICAN TARGET.

1888.

Nov. 10, Walnut Hill, Mass., W. W. Bennett, 470, which is the best professional record.

Nov. 24, Walnut Hill, Mass., J. B. Fellows, 456.

1889.

Feb. 27, Troy, Kan., Dr. R. S. Dinsmore, 458.

March 23, Walnut Hill, Mass., F. E. Bennett, 464.

March 16, Troy, Kan., Dr. R. S. Dinsmore, 451.

March 25, Walnut Hill, Mass., J. B. Fellows, 455, 49 out of 50 shots bullseyes.

May 7, Haverhill, Mass., H. E. Tuck, 447, including a run of 30 consecutive bullseyes.

May 13, Troy, Kan., Dr. R. S. Dinsmore, 463, 47 out of 50 shots bullseyes.

1890.

Jan. 12, Wilmington, Del., E. J. Darlington, 454.
Feb. 18, Bellevue, Ky., Ben. Copeland, 442.
" 18, " " E. M. Brumbach, 420.
" 18, " " Frank Speth, 412.
" 22, Haverhill, Mass., H. E. Tuck, 453.
" 22, " " B. Dimock, 448.
May 3, " " " " 466.
" 30, " " " " 436.
Aug. 28, Walnut Hill, Mass., F. E. Bennett, 452.

1891.

April 8, Walnut Hill, Mass., H. S. Harris, 450.

1892.

Jan. 20, Walnut Hill, Mass., H. S. Harris, 451.
Feb. 20, " " " " " 455.
" 20, " " " E. E. Patridge, 449.
" 20, " " " Major C. C. Foster, 440.
" 22, " " " Sumner Paine, 461.
" 22, " " " E. E. Patridge, 453.
Mar. 16, " " " H. S. Harris, 462.
June 4, " " " Sumner Paine, 462.
Sept. 4, " " " " " 459.

MATCHES SHOT WITH PISTOL, AT 50 YARDS, ON STANDARD AMERICAN TARGET.

1889.

Jan. 25, Barnard, Mo., W. T. Whiteford *vs.* R. B. Power — Whiteford 420, Power 381.

Feb. 15, W. T. Whiteford and R. B. Power, *vs.* N. A. Hughes and C. S. Steuber — Whiteford 410, Power 377; total, 787. Hughes 407, Steuber 388; total, 795.

Feb. 21, W. T. Whiteford *vs.* G. I. Royce — Whiteford 417, Royce 410.

April 24, G. I. Royce *vs.* W. T. Whiteford — Royce 410, Whiteford 426.

Aug. 5, telegraph match, H. E. Tuck, Haverhill, Mass., *vs.* Dr. R. S. Dinsmore, Troy, Kan. — Tuck 439, Dinsmore —.

Aug. 10, Coney Island, near Cincinnati, O., J. B. Copeland *vs.* J. B. Robertson, for championship of Kentucky — Copeland 428, Robertson 419.

Oct. 8, Wilmington, Del., E. J. Darlington 426, H. Simpson 425.

30-SHOT RECORDS, AT 50 YARDS, ON STANDARD AMERICAN TARGET.

1892.

July 6, Walnut Hill, Mass., H. S. Harris, 280.
Dec. 7, " " " " " "

1893.

Jan. 18, Walnut Hill, Mass., H. S. Harris, 265.
Feb. 21, " " " " 258.
Mar. 12, San Francisco, Cal., Col. S. I. Kellogg, 270.
" 15, Walnut Hill, Mass., H. S. Harris, 276.
" 29, " " " " " 275.
April 2, San Francisco, Cal., F. O. Young, 269.
May 10, Walnut Hill, Mass., H. S. Harris, 272.
" 20, " " " " " 282.
" 30, " " " " " 277.
June 17, " " " " " 275.
Oct. 14, " " " " " 276.
Dec. 2, " " " " " 277.
" 30, " " " " " 282.

1892 and '93.

Winners of the championship of Massachusetts. Conditions, 30 shots, at 50 yards, on Standard American target.

1892.

June 16, F. B. Crowninshield.....266
Oct. 29, H. S. Harris.....269
Dec. 3, Sumner Paine.....259

1893.

Jan. 7, H. S. Harris.....266
Feb. 4, F. B. Crowninshield.....260
Mar. 4, H. S. Harris.....262
" 18, " " 272
April 15, " " 272
May 27, " " 268
June 24, B. Dimock.....264
July 8, F. B. Crowninshield.....267
Oct. 7, H. S. Harris.....265
" 28, " " 264
Nov. 25, " " 267
Dec. 9, J. T. Humphrey.....251
" 30, H. S. Harris.....248

Won by H. S. Harris, Dec. 30, 1893.

TOURNAMENT RECORDS.

1889.

June 1, Spring Meeting of Massachusetts Rifle Association — Pistol Match, at 50 yards, 7 shots to a score, 5 scores to count, Standard American target, possible 350:—

H. E. Tuck.....1st — 330 Z. C. Talbot.....2d — 306

1890.

June 17, Spring Meeting of Massachusetts Rifle Association — Pistol Match, at 50 yards, 7 shots to a score, 5 scores to count, Standard American target, possible 350:—

D. A. Allen.....1st — 323 B. Dimock.....2d — 321

1892.

June 16–18, Spring Meeting of Massachusetts Rifle Association — Pistol Match, at 50 yards, 7 shots to a score, 5 scores to count, Standard American target, possible 350:—

E. E. Patridge.....1st — 331 Sumner Paine.....3d — 322
F. B. Crowninshield.2d — 326

CHAPTER XIII.

PISTOL AND REVOLVER SHOOTING AT LONG RANGE.

PISTOL and revolver shooting has been almost wholly confined to short range, both in America and Europe. Occasional reports have reached this country of shooting in Austria to a distance of about 400 yards. This shooting was done with heavy single-shot pistols, weighing from three to five pounds, of about .40 caliber, fitted with sights capable of very fine adjustment, with set triggers and appliances to aid in securing good results.

To learn the capabilities of an American made single-shot pistol, the author purchased a pair of the Remingtons, with twelve-inch barrels, .32 caliber, and chambered for the cartridge made by the Winchester Repeating Arms Co., for the .32 caliber repeating rifle; the charge being twenty grains of powder and 115 grains of lead. The sights fitted to these pistols were very crude, and not suitable for the work attempted. With better sights, doubtless much finer results would be chronicled. The first attempt at long range shooting with these pistols was made by Mr. W. W. Bennett, at Walnut Hill. He shot on the fifty-yard Standard American revolver target, at a distance of seventy-five yards, scoring as follows: —

8 10 5 10 9 10 9 9 8 7 = 85

Falling back to one hundred yards and using the same target, he made the following scores: —

5 7 7 7 8 4 5 9 8 7 = 66
10 5 5 5 10 8 5 5 7 7 = 67

Nineteen of the twenty shots being in a circle of $19\frac{68}{100}$ inches. He then proceeded to the 200 yard firing point, where military marksmen were practicing, and several times scored in ten shots forty-two points out of fifty.

Considerable difficulty was experienced in sighting on the eight-inch bullseye at a distance of 200 yards, and a trial was given on the second class target, which has the following dimensions: —

Size of target, 6 x 6 feet.
Bullseye, circular, 22 inches in diameter.
Center, " 38 " "
Inner, " 54 " "
Outer, remainder of target.

The first trial was at a distance of 150 yards, where the following scores were made: —

Six shots, possible thirty.

5 5 5 5 5 4 = 29

200 yards.

3 5 4 5 5 5 = 27

250 yards.

3 4 4 3 5 5 = 24

300 yards.

2 5 2 3 3 5 = 20

350 gards.

5 5 3 4 3 4 = 24

All of the above shooting was done off-hand, with the right arm fully extended.

It was generally believed among the expert pistol shots the author has met, that the modern American revolver could not be depended on much beyond seventy-five yards, and it was thought useless to try to accomplish good work beyond.

On October 27, 1887, Chevalier Paine devoted the entire day, in company with the writer in experimenting with the revolver at Walnut Hill. Among the numerous experiments tried was shooting with Smith & Wesson

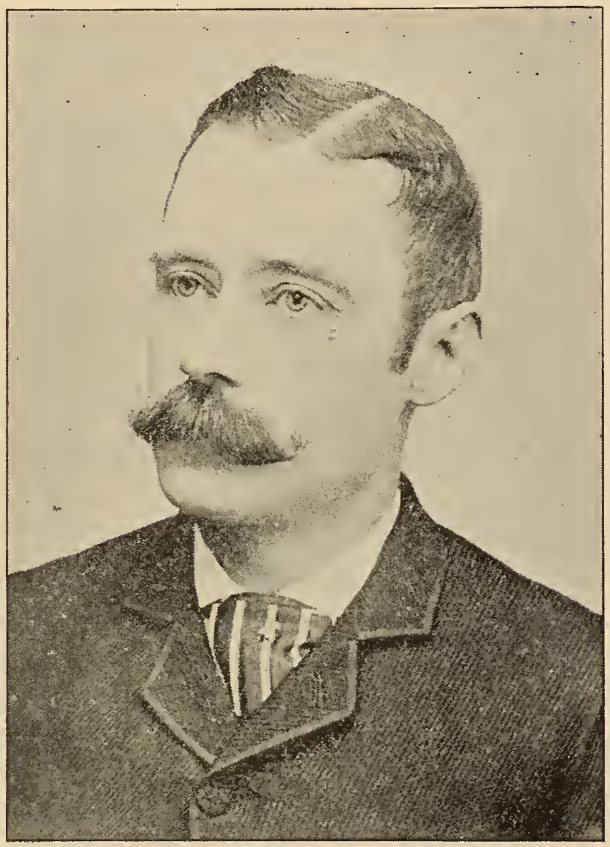


Fig. 112.— Mr. E. T. Travis. Revolver and Pistol Shot, Philadelphia, Penn.

revolvers, at long range. It was decided to shoot on the second-class target, commencing at 125 yards and falling back until it was thought the limit of accuracy with the revolver was found. It was agreed that each one should take sighting-shots at the several distances until the target

was hit, the first shot striking the target and the following five to count.

The result was as follows : —

No 1.		No. 2.
	125 yards.	
3 2 5 4 5 5 = 24		2 4 5 5 4 5 = 25
	150 yards.	
3 4 5 5 5 5 = 27		4 4 5 5 4 4 = 26
	200 yards.	
5 2 2 4 0 5 = 18		4 3 3 3 3 3 = 20
	250 yards.	
3 4 5 3 2 3 = 20		4 3 2 4 0 0 = 13
	300 yards.	
4 5 0 0 4 0 = 13		2 0 2 0 2 4 = 10

In some cases the first sighting shot struck the target. At 300 yards it took three shots from one party to find the target; at all other times one or two shots were sufficient. The scores given above are not intended to show excellence in marksmanship, but to record the results obtained at the first trial by persons unacquainted with the range of the revolver and the sights. The ammunition used was a condemned lot sent to the range by mistake, but which, doubtless, was better than supposed to be. It had been loaded several years, and the lubricant was hard, and in many cases partially detached from the bullet. After the first score had been secured at the several distances, Chevalier Paine shot at 200 yards, and secured twenty-nine out of a possible thirty, making five bullseyes and one center.

Two weeks later, Mr. F. E. Bennett, with a .44 caliber

Russian model Smith & Wesson revolver, shot over about the same distances, with the following results : —

2d class target.— 150 yards.

5 5 5 5 5 5 = 30

200 yards.

5 2 4 0 4 5 = 20

250 yards.

3 4 5 4 3 0 = 19

300 yards.

5 3 0 0 0 0 = 8

If the revolver is properly sighted, there is little doubt that good shooting with this arm can be done up to about 300 yards, under favorable weather conditions. With a single-shot pistol it has been shown that good work can be done at 400 yards. The revolver being a more practical weapon than the pistol, it is likely that the single-shot pistol will in future be confined almost wholly to indoor target practice, and the revolver will be used exclusively in many clubs who shoot their matches out of doors. It has been proven that the revolver is a powerful and accurate weapon from ten to 250 yards. The results of experiments which have been recorded in this chapter were made with the object of showing that a marksman or soldier with ordinary skill, ought to hit many times, with a shot from an army revolver, a standing object the size of a mounted cavalryman, from fifty to 250 yards off.

As stated, the results given in this chapter were the first attempts with no previous knowledge of the range of the weapon, but a year later while Chevalier Paine was in England, he gave a similar exhibition at Wimbledon, and it was considered as worthy of record in the records

of the National Rifle Association of Great Britain. With the sights used on a Smith & Wesson .44 caliber Russian model revolver at thirty and fifty yards, one can shoot up to 250 yards without aiming off the target.

Fig. 113. — Ten shots at fifty yards, by Mr. E. T. Travis, with a Wurfflein Pistol. Shot at Philadelphia, Penn., July 23, 1891. Target reduced one quarter.

I do not consider the practice of pistol and revolver firing at long range of much practical value. Both of these arms are intended for short range work, and their short barrels give the projectile but little force as compared with bullets shot from rifle barrels. A bullet from a pistol or revolver has so little killing power when shot at a range of 200 yards, as to make it of little use.

CHAPTER XIV.

IMPRESSIONS FORMED BY INVESTIGATIONS.

I HAVE endeavored to show in the preceding chapters that not many years ago an impression prevailed that pistols were extremely difficult to shoot accurately; that revolvers did not possess much accuracy, and few, if any individuals, could shoot them with anything like accuracy, all of which has been shown to be incorrect. A revival of the sport of pistol and revolver shooting demonstrated both arms to be extremely accurate. But during the several years necessary to prove this, there seems to have been but one idea among those participating in these departments of shooting, which was accuracy. To such an extent has this been carried that several intelligent gentlemen, desiring to learn the extreme accuracy of pistols and revolvers, affixed to these arms fine sights, generally consisting of a rear peep sight and a pin-head or an aperture for the front sight. With such sights I tested, and saw shot, pistols, and revolvers from ten yards up to 500 yards, careful data of such shooting being recorded. Within a year I received from Mr. W. E. Carlin a handsome album containing the results of most elaborate experiments, by that gentleman and others, with various revolvers, to which were affixed Mogg telescope sights. The receipt of the results obtained by Mr. Carlin, Mr. Hubert Reynolds, and others, together with my own experiments, has enabled me to form, I believe, approximately correct impressions of the capabilities of these arms.

The difference between the pistol and the revolver in

point of accuracy and reliability is noticeable. With both there are occasional unaccountable shots, but this is far less frequent with the pistol than with the revolver. I have seen a pistol shoot many shots into a group one inch

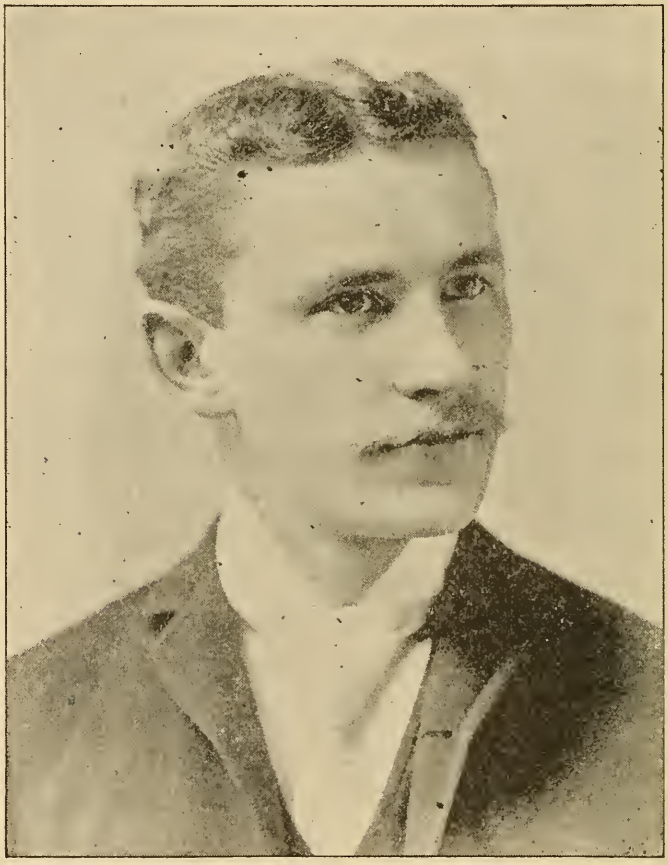


Fig. 114. — Mr. Harry J. Mehard, Philadelphia. Amateur Pistol and Revolver Shot.

in diameter at twenty yards; into a $2\frac{1}{2}$-inch circle at fifty yards; into a six-inch circle at 100 yards; into a ten-inch circle at 200 yards; into a thirty-inch circle at 300 yards, beyond which distances there is no reliability. A revolver will often shoot on and in an inch circle at a distance of twenty yards. I have scores of such groups,

shot with a .32-44 Smith & Wesson revolver with U. M. C. gallery ammunition. Among my collection are several groups which a circle one-half inch in diameter would touch and enclose them all at thirty yards. A modern American revolver of .44 caliber with perfect factory ammunition is capable of placing ten shots on and in

Fig. 115.—Ten shots at fifty yards, by H. J. Mehard, at Philadelphia, Penn. Shot with a Wurfflein Pistol, April 25, 1893. Reduced one quarter.

the ten circle on the Standard American target, $3\frac{36}{100}$ inches in diameter, at a distance of fifty yards. I have many groups which are inclosed in even smaller spaces, shot at a distance of fifty yards. At 100 yards a .44 caliber revolver is capable of shooting into an eight-inch circle, but these would be selected groups and unaccountable shots more frequent. I have groups of shots fired at 150 yards with the .44 caliber revolver and factory ammuni-

tion, which could be placed on and in a circle twelve inches in diameter; and groups of shots made at 200 yards on and in a circle sixteen inches in diameter. Beyond 200 yards a general idea of the accuracy of revolvers can be procured from the chapter devoted to pistol and revolver shooting at long range. At every yard the range of a pistol or a revolver is extended, the liability of unaccountable shots is increased, this unreliability being greater with the revolver.

All the information relating to the accuracy of these arms is interesting and of some practical value. It shows such arms to be capable of accuracy when charged with correct ammunition, and therefore gives confidence to those using the weapons.

Now that it has been demonstrated that the revolver is an accurate arm, it is proper that it should be separated from the pistol and assigned to its correct place. I consider the single-shot pistol the legitimate arm of target shooters. It is proper to make rules governing competitions where pistols are shot, so they will develop the highest skill of the marksman and the arm. The single-shot pistol should be used as are match rifles in off-hand competitions; but to allow the revolver to be shot under the same rules, and the results held up for the inspection of the world as examples of revolver shooting, I consider as wrong and deceptive. I have previously referred to the absurdity of using a revolver with lightly loaded charges, and allowing the marksman unlimited time to aim, often permitting the revolver to be sighted several times before it is discharged. In my opinion, that is one of the illegitimate and absurd uses of the revolver.

There is another improper use to which the revolver is put. It is the careless manipulation of the arm by twirling it on the fingers; it is said the manipulation of the

arm in such a manner is sometimes followed by cowboys. I have seen a great many cowboys shoot revolvers, and I have seen some splendid shots among them, but they never did any good shooting by twirling the revolver around, snapping it in a careless manner, shooting it upside down, or any other of the absurd ways which stage shots sometimes attempt. I have seen several narrow escapes from death by attempts to handle a revolver in such a ridiculous manner, and have known of several deaths from such cause.

I do not think shooting a revolver with a steady aim and unlimited time is proper practice for soldiers or those desiring to acquire a practical proficiency with the arm; neither do I believe the handling the revolver in the careless and absurd manner described a legitimate use of the arm. I favor shortening the distance in revolver shooting, and reducing the time allowed for shooting. I also believe that a moving target and a disappearing target should be employed, the former arranged so it will move across the line of fire at a certain speed, the other so that the target shall appear at stated intervals, remaining in sight a specified time, during which one or more shots should be fired. Learn to shoot a revolver quickly, but not carelessly.

Outdoor pistol practice in America is in advance of Europe, but with revolver practice in many sections of this country, we are behind England, solely because we are not practical, this being especially so among the volunteers.

Colonel William L. Chase, inspector general of rifle practice of Massachusetts at the time of writing, has given intelligent study to the matter of revolver shooting in the National Guard, and his example in prescribing rules which oblige the volunteer to fire his six shots within a space of one minute is a step in the right direction, and an example worthy of imitation wherever revolver practice

is participated in by the citizen soldiers. But revolver practice should call for more than shooting at a stationary target. A man who can place his five or six shots in an eight-inch bullseye at twenty yards in half or three quarters

Fig. 116.—Target shot by Mr. Henry S. Harris, in Pistol Match for 1890, at Walnut Hill, with a Diamond Model Stevens Pistol; distance fifty yards; target one fourth original size.

of a minute, is far more proficient in my opinion, in the legitimate use of the revolver than he who scores ninety on the Standard American target at fifty yards, with a deliberate aim and unlimited time, fine sights, lightly loaded ammunition, and light trigger pull.

The army officers of the United States, especially the cavalry officers, are responsible, it is thought, for the reduction in the caliber of revolvers for military use in this country; many of them have made public their ideas

in papers and in military journals, and express an opinion that the old .45 caliber army revolver was unnecessarily powerful, claiming that a revolver which would shoot accurately and powerfully at a distance of ten or twenty yards was the proper arm. I do not hesitate to record here my opinion, which will be left for years to come, that a great mistake has been made in the reduction of caliber in revolvers for military use by the United States government. I am of the opinion that the old army revolver was perhaps unnecessarily powerful, but by no means too large in bore. The principles applied to a rifle, it does not seem to me, can be embraced in a revolver. Undoubtedly the reduction in the caliber of military rifles is a wise change. Rifles are to be shot at long range, while a revolver is an arm of close quarters; and when the latter is employed, it is desirable to have an arm which will disable the enemy at once. I would emphasize my belief that rifles should be smaller in bore, and revolvers as large as .45, if not larger.

Viewing implements of war or defense from a humane standpoint, the claim that small bore rifles wound rather than kill, may be right. These sentiments, however, cannot with safety be applied to the revolver: with that weapon it is often to kill or be killed. The officers who chose a new revolver for the United States Army reported that the board had no means of knowing "whether these arms (those tested) have the necessary stopping power." In my opinion the most potent point was neglected.

A revolver is utterly useless without stopping power. Verification of this is accessible to any one interested in the subject. Some army officers recognize this, but it would seem they are in the minority. Lieutenant Eben Swift, of the Fifth United States Cavalry, presented some

data on this subject in a paper printed in the Journal of the United States Cavalry Association. He says : —

"Major H. E. C. Kitchener, now a major-general, I believe, in the English army, in the year 1886 wrote a valuable article on the use of revolvers. He appears to have consulted a great number of officers who had experience in that savage warfare in which they had to deal with a fanatical enemy, whose only hope of heaven was in killing and being killed. There are no fiercer fighters on earth than these Afghans, Zulus, and Arabs, who, armed with hand weapons entirely, were able to run over well-disciplined troops armed with breech-loading rifles. The officers were earnest in declaring that toy pistols would not do for such service; that there must be no doubt of the ability of the weapon to drop an adversary in his tracks. Many would not trust the caliber .45, and favored the double-barreled pistol caliber .577 and the four-barreled pistol caliber .476, on account of their stopping power. In the Afghan and Egyptian campaigns nearly all the officers of the Tenth Hussars armed themselves with these pistols instead of revolvers. Much was said in favor of smooth-bore barrels for weapons whose use is essentially at close quarters, and from which it is desired that a heavy shock to the object aimed at should be given. Others spoke in favor of buckshot cartridges, which give a terrible shock. Express bullets, such as are used in hunting large game, were suggested for revolvers which were called on to stop equally wild men. Increased stopping power was also given by cutting off the pointed end of the bullet."

In 1879 Major Edin Baker reported : —

"I saw Captain H., of the Bengal Cavalry, empty five shots from his revolver into the back of a Ghazi, who was running amuck through camp, at less than five yards' range, without stopping him. I examined the man myself afterwards, and found the marks of all six bullets in his body. I consider the service revolver should throw a heavy ball of .5 inch to .55 inch diameter, and I am half inclined to believe a flat head to the bullet would be an advantage."

The English army revolver at that time was .455 caliber, shooting a cartridge containing eighteen grains of powder and a 250 grain bullet.

In contradistinction to the above, I would refer to the work of Captain George D. Wallace, of the Seventh United States Cavalry, during the Indian outbreak at Pine Ridge Agency in 1891. After the Wounded Knee fight, the body of Captain Wallace was found at the entrance of an Indian lodge, and there was every evidence that the officer had sold his life very dearly. Five Indian warriors lay dead around him, each of them with a single bullet wound. The captain had a six-chambered revolver in his hand empty, and it is therefore presumed that, before he was overpowered by the savages, he had a desperate fight, and emptied the revolver upon his adversaries, each shot having fatal effect. The revolver used by Captain Wallace was a Colt .45 caliber army pattern, shooting a cartridge containing forty grains of powder and a 250 grain bullet. Only five chambers of the six in the revolver were loaded, as it was the custom of army officers to carry one chamber empty, resting the hammer against the empty chamber for safety.

From correspondence and conversation with army officers, I have formed the impression that the terrific recoil of the old army .45 caliber Colt revolver made it an object of dread to most officers and men. It would have been a wise move, in my opinion, to have reduced the charge slightly and retained the caliber, flattening the point of the bullet. Such is the opinion formed by several years' study of the revolver, carefully recording the effect of shooting people and animals with revolvers of various calibers and different charges.

A perfect revolver should possess all the power that is possible without making the recoil unbearable to the shooter.

CHAPTER XV.

RULES FOR PISTOL AND REVOLVER SHOOTING.

Massachusetts Rifle Association Rules for Pistol and Revolver Shooting.

Revised January, 1894.

In all matches, when not otherwise mentioned, either single-shot pistols or revolvers will be permitted upon equal conditions; but if matches call for the revolver, the single-shot pistol will not be admitted, unless specially mentioned.

SPECIAL RULES.

Pistols and revolvers allowed in competitions must conform to the following conditions: —

A. — Army or navy revolver.
B. — Any revolver.
C. — Any pistol.

A. — *Army or Navy Revolvers* must be such as have been adopted by any government for the armament of its army or navy, and must conform, in all respects of model, sights, and ammunition used, to the service revolver of such nation.

B. — *Any Revolver.* — Revolvers of any caliber, maximum weight, three pounds; maximum length of bore, including cylinder, ten inches.

C. — *Single-Shot Pistols.* — Any breech or muzzle loading pistol, maximum weight, three pounds; maximum length of bore, ten inches.

Trigger Pull. — In all matches, or in practice shooting, the minimum trigger pull shall be three pounds for revolvers, and two pounds for the single-shot pistols.

Sights for any Pistols or Revolvers. — The front and rear sights must be open, and not more than ten inches apart; the notch of a rear sight, to be considered open, must be as wide at the top of the notch as at any part; no aperture or peep sights, nor any manner of covered sights, shall be permitted. Lateral sliding bars or wind gauge may be used on rear open sight, also any elevating front or rear open sight. The use of a notch for a front sight will not be permitted. Sights may be smoked or blackened in any desired manner.

Ammunition. — If factory ammunition is called for, it shall be of any make, of any established manufacturer, generally procurable in stores, and brought to the shooting-point in unbroken boxes, with the label of the manufacturer intact.

Cleaning. — In any match where both pistols and revolvers are allowed, competitors may clean their arms at will, provided such cleaning does not delay the firing, which shall be at the rate of one shot per minute, when time limit is required, or oftener during the firing of each score, except in case of accident. In such case the time may be extended, in the discretion of the executive officer.

In matches confined to revolvers the cylinder must be fully charged, or a sufficient number of chambers charged to complete the score. Blowing into or cleaning the barrel in any way will not be permitted, except when the cylinder is completely discharged.

Loading and Firing. — No arms shall be loaded except at the firing-point, the muzzle of piece being kept in the direction of the target till the arm is either discharged or unloaded.

Misfires shall not count; but an accidental discharge shall, in every instance, be scored a shot.

Position. — The position shall be as follows: Standing free from any other artificial support, the pistol or revolver held in one hand only, with the arm extended free from the body, and unsupported in any way.

Targets. — The Standard American target, full size, having an eight-inch bull, shall be used in matches at fifty yards' distance. The same target reduced to one-half size, having a four-inch bull, in matches at thirty yards' distance. The same target reduced to one-quarter size, having a two-inch bull, in matches at twenty yards' distance. The target reduced, in the same proportion to distance, in matches of a lesser range.

Marking and Scoring. — Unless otherwise specified, each competitor will have a separate target provided, and will fire his score throughout, when the target will be examined by the scorer and the score recorded.

Value of Shots. — If a bullet touches a line the count of that line is given; shots on or within that line count the same. The eye alone shall determine the count. Placing a bullet or other articles in the shot hole is not permitted.

Appeals. — In case of a challenge or of dissatisfaction in any way connected with the shooting, in matches or practice, being referred to the executive officer, he or his representative shall render a decision. Should his decision be unsatisfactory, an appeal may be made in writing to the executive committee; the decision of the majority of this committee shall be final.

To Avoid Danger. — No unnecessary talking will be allowed to or by shooters while on the firing-point with loaded pistol.

Rules Governing Revolver Firing in U. S. Army.

The following rules are prescribed for revolver firing in the United States Army, and are reprinted from "Firing Regulations for Small Arms for the United States Army," by Captain Stanhope E. Blunt, published by Charles Scribner's Sons, New York, by permission of the author and the publishers.

REVOLVER FIRING.

DISMOUNTED PRACTICE.

831. All cavalry troops and all other soldiers armed with the revolver should be instructed in its use; the practice for the cavalry should also be conducted mounted.

832. Owing to the unsteady support that the hand gives to the weapon, the methods of aiming previously prescribed for the rifle and carbine cannot be advantageously followed. This is especially true of the practice mounted, where the motion of the horse and the very limited time available for the delivery of the fire permit neither the steadiness nor deliberation so requisite for success with the other arms.

833. The best results will then be obtained by following the method of snap shooting; for which the pistol should be held raised and then quickly projected at the mark and fired without pause or any effort to align it upon the object, the action being somewhat similar to that employed in throwing a missile from the hand and from the same raised position of the arm.

834. The instruction will be commenced with the revolver not loaded, the men being taught the motions and the methods of delivering the blow in different directions.

835. For this purpose, the men being formed in single rank with an interval of one pace between files, the instructor commands,

1. *Raise*, 2. PISTOL,

when the pistol will be drawn from the holster and brought to the position prescribed in the Cavalry Drill Regulations.

836. The pistols being in the position of *raise pistol*, the instructor commands,

1. *Squad*, 2. READY,

at which the pistol will be cocked with the thumb of the right hand; this motion is greatly facilitated by giving the pistol a short quick jerk forward and downward, the weight of the barrel seconding the action of the thumb. The position of *raise pistol* is then resumed.

837. Separate commands for aiming and firing will not be given, but the fire delivered to the front at the single command,

FIRE,

when the soldier, looking with both eyes intently at the mark and not even glancing at the sights or the pistol, will lower the pistol smartly to the front, in the direction of the object, and fire without pause or any effort to align the sight upon the mark. The mark should be a black disk about the size of a target paster on the barrack wall, at the height of the soldier's head and about ten feet distant.

838. The instructor will pay particular attention to the manner in which the soldier holds the pistol; the clasp of the thumb and second

Fig. 117. — Ten shots at fifty yards, by Mr. H. J. Mehard, of Philadelphia, Penn. Shot with a Wurfflein pistol, Dec. 2, 1893. Score ninety-six. Reduced one quarter.

and third fingers should be firm, the first finger being on the trigger and the little finger underneath the end of the handle. If the clasp is too high up on the handle, the muzzle will be elevated; if too low, the muzzle will be depressed. The clasp should not be so tight as to communicate tremor to the pistol, yet sufficiently firm to sustain, when firing with ball cartridges, the force of the recoil. After the discharge the position of *raise pistol* will be resumed.

839. These motions will at first be executed rather slowly, the instructor correcting the positions if necessary, and the motions quickened as the soldier acquires the habit of leveling or projecting instinctively the pistol in the same manner that the forefinger would be pointed at an object.

840. Fire will be delivered to the right and front by the commands,

1. *Ready*, 2. RIGHT OBLIQUE, 3. FIRE.

At the first command the pistol is cocked as before, at the second the head and eyes are turned toward the right forty-five degrees, and at the last command the pistol is leveled and fired in the direction in which the eyes are looking. The position of *raise pistol* is then resumed.

841. In a similar manner the men will be instructed in firing to the left and front, to the right, to the left, and to the rear, substituting the commands LEFT OBLIQUE, TO THE RIGHT, TO THE LEFT, TO THE RIGHT AND REAR, TO THE LEFT AND REAR, and TO THE REAR for the second command above. When firing to the left the pistol hand will be about opposite the left shoulder; when firing to the right and rear or left and rear the shoulders will be turned forty-five degrees to the right or left respectively; in firing to the rear they will also be turned forty-five degrees to the right; for the other firings they will be kept nearly square to the front, such slight variations being made, however, as may be necessary to obtain an easy and natural position.

842. As soon as the soldier is familiar with the methods of delivering a single shot he will be practiced in the methods of firing several shots; generally the number corresponding to the contents of the chamber. For this practice the command *Commence* FIRING will be substituted for that of FIRE as given in the preceding paragraphs. In executing these commands the pistol will be brought back after each shot to the position of *raise pistol*, when it will be cocked and the following shot delivered.

843. Instruction will then be given with blank cartridges, the troop being formed in echelon to the front at distances and intervals of five or ten yards, so that each man can fire in all directions without injury to the other men.

844. For instruction in firing ball cartridges ranks will be broken, and the practice conducted with but one man at a time. The target will be that used for gallery practice at fifty feet (paragraph 148), and will for the first firing be five yards, to be afterward increased to ten yards from the soldier. The cartridge employed will contain ten or twelve grains of powder and a round ball. Practice will be held in firing in the different directions previously prescribed.

845. When the soldier exhibits proficiency in the preceding practice, he will be advanced to firing with the regular service cartridge at the A target used for rifle and carbine firing on the range. For cavalry troops the course of instruction, which for all, both officers and enlisted men, will be conducted each year, will consist of the preliminary and regular or record practice; the former comprising not less than five nor more than twenty shots at the distances ten, twenty-five, fifty, and seventy-five yards, firing to the front, the position being standing, off-hand, without rest or support of any nature for the pistol or pistol arm, and the latter two scores, of five shots each, at each of the distances twenty-five, fifty, and seventy-five yards. These firings may be preceded or supplemented by additional practice at the same or different distances in the discretion of the troop commander, but the distinctions and rules governing these classes of practice as prescribed in paragraphs 204 to 208, and paragraph 216 will always be observed.

MOUNTED PRACTICE.

846. The different steps of the instruction, when mounted, will be conducted according to the general plan outlined for the dismounted practice, the exercises for the recruit commencing as soon as he has become fairly proficient in the school of the trooper mounted.

847. At a convenient part of the drill ground several A targets on temporary frames, or the silhouette target D, should be placed; they should be thirty or forty yards apart and faced in the same direction. The troop should be divided into as many squads as there are targets, and each squad formed opposite its target and about twenty yards from it. By the commands and means prescribed in the SCHOOL OF THE TROOPER MOUNTED, the squads will be manœuvred in front of their respective targets, circling to the right and left by squad and by trooper, the soldier (chambers being empty) practicing at first by command and then at will the motions of firing in different directions. The gaits employed will be first the walk and then the gallop. This practice will be continued, with the trooper using blank cartridges.

848. When the soldier becomes accustomed to handling the pistol mounted and the horses used to the firing, the practice will be continued upon the target range where the track, and targets five yards distant (the silhouette target "D" only being used), will be arranged, as nearly as the ground permits, as illustrated by the accompanying diagram: —

849. Before firing ball cartridges the squad will be manœuvred in column of troopers on the track in front of the targets, each trooper as he passes each target going through the motions of firing, with empty chambers. A canter and afterward a full gallop will be taken in this exercise.

850. In subsequent exercises when passing the targets the distance will be increased to twenty yards between troopers, provided the horses can be properly controlled and the gait increased to a gallop; the trot being taken upon entering the opposite long side until closed, the head of the closed column halting so as to allow the troopers to resume the increased gait at the proper moment. Blank cartridges will then be fired and this exercise continued until each trooper can fire five cartridges with deliberation and coolness in the time occupied in passing by the targets.

851. For firing with ball cartridges the troop will be formed as illustrated in the diagram. At the proper command each trooper will move out from the right at a walk, take up the trot and gallop, and at the latter gait move along the line of targets, delivering one shot at each. He will then resume the trot and take his place on the left of the troop. The succeeding trooper will follow at such an interval, depending upon the tractability of the horses, as the troop commander deems most advisable, but preferably not moving out until the hits made by the preceding trooper have been determined and the shot holes pasted.

852. After the troopers become skilled in the use of the revolver, firing to the right, the practice will be conducted firing to the left; then placing the targets obliquely to the track, the firing will be to the right front, to the left front, and to the right rear in the order stated. In firing to the left the men move out by trooper from the left, and move around the track with the targets on the left hand. Each of these varieties of the practice will be preceded by the preliminary instruction specified in paragraph 849.

853. For practicing firing directly to the front, four D targets will be arranged in line with intervals of five yards and the troop formed in front of the targets at a distance of 100 yards. At the proper command each trooper from the right in succession will advance on the targets, open fire when eighty yards from them, and, firing five shots between that point and the targets, pass between them and return to the troop.

Before firing ball cartridges, this practice will be held with chambers empty, the trooper going through the motions of firing; a canter, and for the final practices a full gallop being maintained during the firing.

854. For further practice in firing to the front the targets will be arranged with intervals of between five and ten yards, in the discretion of the troop commander, and the troopers, with corresponding intervals, advanced by fours upon them, firing as for the charge of the single trooper, passing between the targets and returning to the left of the troop.

The number of targets will then be increased to correspond to the number of troopers in a platoon and the entire platoon advanced in a manner similar to that for the fours, firing and returning to the troop as above directed.

The preliminary and later instruction in these two practices will be conducted as prescribed in the preceding paragraph.

855. When the troopers, individually and collectively, have been carefully instructed in all the preceding practices, they will each be repeated with ball cartridges, and a careful record for final report made of the result, each hit being scored one. This record or regular mounted pistol practice then consists of the following course: with the targets arranged as in paragraph 848, one run (five shots) for each trooper firing in each of the prescribed directions; viz., to the right, left, right front, left front, and right rear, or twenty-five shots in all.

With the targets arranged as in paragraph 853, one run (five shots) for each trooper firing as there prescribed.

The course of individual mounted firing thus comprises thirty shots; it will be followed by each officer and enlisted man.

With the targets arranged as in paragraph 854, two runs (ten shots per man) for each set of fours, and two runs (ten shots per man) by platoons.

The course of collective firing thus comprises twenty shots, and the entire regular mounted course is therefore completed in fifty shots,

which, with the thirty shots for the regular dismounted course, makes a grand total of eighty shots for the entire course.

856. Instruction in revolver firing will be carried on during the regular practice season, care being exercised that during the first month it is held on those days not favorable for carbine firing. During the second month, when the carbine practice will generally be only the collective firing of the troop, the revolver practice will be more energetically pushed and the course completed by the close of the season.

At the close of the first month and of the first and second weeks of the second month, troop commanders will report by letter to the inspector of small arms practice of the department the number of times practice has been held and the progress made in the prescribed course, and at the close of the season will report on the proper form (Form 30-f) the score of each officer and man in the dismounted practice, the number of hits made by him in each of the required individual mounted practices, and the number of hits in the collective practice, when firing by fours and by platoons. The per cent of possible score for the troop for all this firing will also be given. A summary of this final report, giving the per cent of each troop in revolver firing, will accompany the annual report (Form 30) of the department.

The following General Orders No. 143 from headquarters of the army, adjutant-general's office, Washington, December 17, 1890, is supplementary to the preceding remarks: —

The following modifications, prepared by Captain Stanhope E. Blunt, Ordnance Department, of the Firing Regulations for Small Arms, having received the approval of the secretary of war, will govern in the future practice of the army: —

1. Commissioned officers after completing the firing with rifle or carbine prescribed for the second and subsequent seasons, while permitted, will not be required to participate in the annual course of practice; if, however, they do practice and make scores sufficient for qualification as marksmen, they will be included in the figure of merit; but if they do not practice, or if their scores are below the required total, they will not be classified.

2. The monthly company report of progress in target firing (Form 30-c) and the orders required by paragraph 560 to be compiled *monthly* from it will hereafter be omitted.

3. The division competitions provided for by paragraphs 591, 598, and 599 will be omitted.

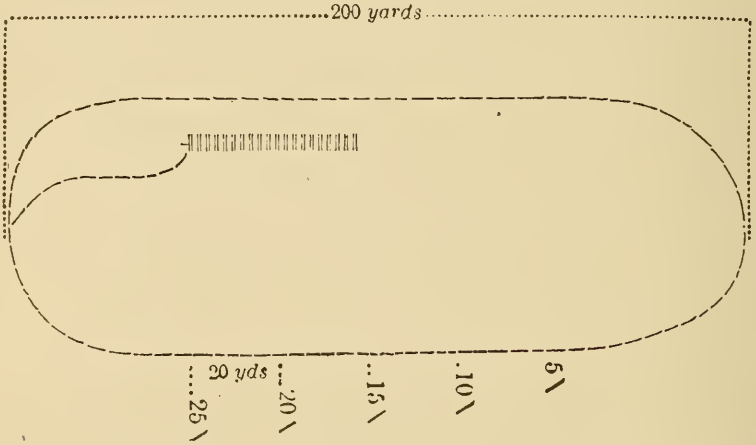
4. The alternates mentioned in paragraph 596 will not hereafter be added to department teams.

5. The cavalry competitions provided for by paragraph 600 will be four in number; they will be conducted in the manner there prescribed, but for prizes similar to those awarded at department competitions.

6. In the revolver match provided for by paragraph 601, the dismounted portion will be as there prescribed; the mounted portion as there prescribed, with the following modifications: —

a. Under 1st, page 231, the targets (target D) will be at ten yards instead of five yards from the track.

b. Instead of the firing to the front (2d, page 231), the firing will be conducted as in 1st, page 231, but with the target (target D) first fired at twenty-five yards from the track, the second target twenty yards, the third target fifteen yards, the fourth target ten yards, and the last target five yards from the track, as illustrated in the accompanying diagram.



When repeating the firing to the left, the positions of the targets will be changed so that again the first fired at shall be twenty-five yards from the track, the second twenty yards, and so on. The targets will be placed at an angle of forty-five degrees with the track, in order that the firing may be to the right front and left front, instead of directly to the right and left.

c. Same as "*a*," except that the targets (target K) will be the silhouette of a mounted soldier. In all cases, both in regular practice and in matches, where this target is used, hits, direct or ricochet, in that portion of the silhouette above a line drawn from the back of the horse to the point of junction of the trooper's arm and horse's neck, will be scored two; all other hits will be scored one.

d. Same as "*b*," except that target K will be used instead of target D.

In determining the order of merit in the revolver match, the dismounted firing, the mounted firing at the D targets, and the mounted firing at the K targets will be considered separately, and the final order decided by the mean of the percentages for these three classes. In case of ties the provisions of paragraph 651 will be applied, the firing at the K targets being for this purpose considered as at the longest distance and the dismounted firing at the shortest. The prizes will be as now provided by paragraph 602.

If deemed expedient by the officer in charge of the competition,

paragraph 601 may be further modified by including in the first day of the match a portion of the mounted firing, provided that similar portions for each competitor are so included.

7. Distinguished marksmen eligible under the provisions of paragraph 605 for membership on the army teams will participate in the appropriate department or cavalry competition in a manner similar to that now provided in paragraphs 603 and 604. The officers and enlisted men, five in number, highest on the resulting list at each department or cavalry competition will be assembled annually at some central point to compete for places respectively on the army rifle and army carbine teams of ten, in the manner and for the prizes now provided for army competitions. Alternates will not be selected for these army contests.

8. Distinguished marksmen who have not gained places among the selected competitors for the army teams or who may no longer be eligible for those teams, will be assembled annually to the number of ten, firing with the rifle, and the same number with the carbine to compete for the prizes now provided in paragraph 605. The number of these marksmen to be thus selected at each department or cavalry competition, will be determined annually by the commanding general of the army. The competitions of these teams will be held at the same time and place as the army competitions.

9. The "short quick jerk forward and downward" prescribed in paragraph 836 as an aid in cocking the revolver will be omitted and the pistol cocked by the thumb alone while at the position of *raise pistol.*

10. In dismounted firing with the revolver, deliberate aim will be taken, or else the method of quick-aimed fire hereafter prescribed for mounted practice will be followed, in the discretion of the troop commander.

11. The dismounted practice at seventy-five yards, required by paragraph 845, will be omitted, and the record practice at twenty-five yards and fifty yards limited to five shots at each range.

12. In mounted practice the method of quick-aimed fire will be substituted for the snap shooting prescribed in paragraphs 833, 837, and 839. In this method of firing, the soldier will lower the pistol from the position of *raise pistol*, point or thrust it towards the objective, and, looking along the barrel at the object, fire without delay as the alignment is caught, and without effort to prolong or correct the aim.

13. In the preliminary instruction in mounted firing, the targets (refer to diagram, paragraph 848) will be placed at ten yards as well as at five yards from the track, and also as prescribed in paragraph 6, "*b*," of this order, and the gaits of walk and trot as well as gallop observed when circling around the track. To this will be added similar instruction, using for targets the silhouette (target K) of a mounted soldier.

14. Mounted firing to the front, both individual and collective, as prescribed by paragraphs 853 and 854, will be omitted.

15. The following record or regular mounted pistol practice will be substituted for that prescribed by paragraph 855, each trooper during its prosecution riding his own horse: —

a. With the targets (target D) arranged as in paragraph 848, one circling of the track at a walk for each trooper, firing five shots in each

of the prescribed directions; viz., to the right, left, right front, left front, and right rear, or twenty-five shots in all.

b. Similar to "*a*," except that the track will be traversed at a gallop; twenty-five shots.

c. Similar to "*b*," except that the targets will be ten yards instead of five yards from the track; twenty-five shots.

d. Similar to "*c*," except that the targets (target K) shall be silhouettes of a mounted soldier; twenty-five shots.

e. With the targets (target D) arranged as directed in paragraph 6,

Fig. 118.—Ten shots at twenty-five yards, by Sergt. J. J. Mountjoy, with a Wurfflein Pistol. Shot at Philadelphia, Penn., May 22, 1892. Reduced one half.

"*b*" of this order, one circling of the track, at a gallop, to the right and one to the left; ten shots.

f. Similar to "*e*," except that the target K will be used instead of target D; ten shots.

The entire record course, which will be followed by each officer and enlisted man, thus comprises ten shots dismounted and 120 shots mounted.

16. Instruction in revolver firing will be held separately from that with the carbine, the season for that purpose being one month in duration, which will either precede or follow the practice season with the carbine, as the department commander may direct.

17. As accuracy in revolver firing is greatly influenced by the tractability of the horses, every endeavor will be made to accustom them

to the report of firearms. For this purpose it will be found advantageous to conduct the earlier instruction of the trooper, prescribed by paragraphs 843 and 844, in the corral or other convenient place near the horses, which, at first left free to move around, should, as they become more familiar with the noise and flash, be lariated near the firing party and gradually brought closer to the men; also, during the dismounted practice with ball cartridges, the horses should always be in the near vicinity of the firing-point.

If this training is carefully conducted, and if when commencing the mounted practice with blank cartridges, prescribed in paragraph 847, effort is made to do so without haste or excitement, the horses will be readily broken to mounted firing.

18. No reports of revolver firing will hereafter be rendered except that (Form 30–f) now required by paragraph 856, at the close of the season.

19. For each cavalryman, officer and enlisted man, revolver ammunition to the value of $2 will hereafter be annually allowed, and in addition for each troop of cavalry, 8,000 rounds of blank revolver ammunition, instead of the respective amounts now fixed by paragraphs 875 and 881.

20. The allowance of revolver ammunition now fixed by paragraph 884 is modified to read sixty ball and twenty blank cartridges.

By command of Major General Schofield:

J. C. KELTON,
Adjutant General.

Official:

Assistant Adjutant General.

REVOLVER PRACTICE IN THE U. S. NAVY.

The following instructions from Gunnery Drill Book govern revolver practice in the U. S. Navy.

MANUAL FOR COLT DOUBLE-ACTION NAVY REVOLVER.

ORDERS.

CAUTION.	PREPARATION.	EXECUTION.
1.....	Pistol	Draw! 1
2. *Round..	Single aim... / Single snap..	Fire! 2
*Round..	Double aim.. / Double snap.	
3.....	Cartridges / Pack.....	Load! 3
4.....	Return.....	Pistol. 4

1. "Pistol, draw!" (One time and two motions.) At the order, "Pistol," carry the right hand to the holster, loosen the flap catch by an outward and upward pull of the flap, pass the fingers under the grip, and loosen pistol in holster.

"Draw!" Draw the pistol from the holster and carry it to the right shoulder, barrel vertical, hammer at height of shoulder, fingers clear of trigger and in rear of trigger guard.†

2. "Single, aim, fire!" (One time and three motions.) "Single," full cock and carry first finger to trigger. "Aim," extend the right arm straight to the front, elbow very slightly bent, and aim at the object

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* NOTE.—Cautionary order "Round," to be given only when all chambers are to be emptied.

Any number of shots may be designated as Three, Two, etc.

When but one shot is to be fired, no cautionary order is given.

† NOTE.—When the cutlass is worn with the revolver, the holster will be on the right hip; normally just in rear of the hip joint, but it may be moved in front of the hip, at order "Pistols, front," when the occupation of the men is such as to make this last mentioned position more desirable.

When the cutlass is not worn, the holster will be on the left hip; normally in rear of the hip joint, but it may be moved to the front as before.

In any of these four positions, the grip will be presented to the hand conveniently, and in any of them the left hand may be carried to the holster at the order, "Pistol," to steady it against the pull in drawing, in case it has become wet from rain, or from having been overboard, as in landing, etc.

with foresight filling notch to top of the frame. "Fire." Pull trigger and return to position, "Pistol, draw."

"Single, snap, fire!" As before, except that the object will be pointed at without running the eye over the sights.

"Double, aim, fire!" As before, except that the piece will not be brought to full cock.

"Double, snap, fire!" As before, except that the sights will not be used.

When cautionary orders, as Round, Two, Three, etc., are given, all chambers will be emptied, or the designated number of shots delivered before coming to the position, "Pistol, draw."*

3. Cartridges, load!" (One time and three motions.)

First motion. Carry the left hand in front of the body, left forearm pointing forty-five degrees to the right, and slightly above the horizontal, palm of the hand up. Drop the piece into it, latch up, cylinder in the palm, barrel between thumb and first finger, muzzle forty-five degrees to the left, and forty-five degrees below the horizontal. With thumb of right hand unlatch cylinder, and with second and third fingers of left hand turn out cylinder, pressing crane firmly back, first finger resting on barrel at joint of frame, and fourth finger on hammer. With thumb of left hand applied to ejector-rod head, slowly press rod home, and hold it in that position while any fired cartridge cases that have not fallen off are brushed aside by first finger of right hand. Allow thumb of left hand to slip from rod head and rest on the cylinder Carry right hand to cartridge box and loosen catch.†

Second motion. With the thumb and first finger of the right hand take a cartridge from the box and place it in an empty chamber. So continue till all chambers are loaded. With right hand fasten cartridge box flap and grasp grip of pistol, finger clear of trigger. With thumb of left hand press cylinder home. Elevate muzzle forty-five degrees above the horizontal. Release thumb pressure, and with second and third fingers press back and upward on cylinder, thus rotating it and testing security of latching and freedom of rotation.

Third motion. Resume position, "Pistol, draw."

"Pack, load!"‡

---

* NOTE.— In pointing or aiming, the grip should be firmly but lightly grasped by the last three fingers and the thumb, the first joint of this last pointing slightly down. The shape of the grip does not lend itself to extending the thumb, nor to dropping the fourth finger under the butt; nor are such positions used by the best pistol marksmen. The pull upon the trigger should be made with the second joint of the first finger, and the direction of the pull should be directly to the rear. Very few hands will be found to be so small that this cannot readily be done. The elbow should be slightly bent, so that the recoil will come upon the muscles, and not upon the braced bones of the arm. At the instant of pulling trigger, the grip of the hand and the muscles of the arm should be slightly tautened, to steady the piece against the pull and the "flip."

† NOTE.— In "Cartridges, load," the muzzle should be depressed and the ejector worked slowly to avoid throwing out unfired cartridges when ejecting. In all cases, when loading, the muzzle should be depressed, or the cartridges may slip out before the cylinder is closed.

‡ NOTE.—In "Pack, load," the muzzle should be elevated in ejecting, so that the empty cartridge cases will fall clear.

When ejecting under any circumstances, the cylinder must be held fully open — the crane must be pressed firmly back — to allow the head of the case nearest the latch to pass by.

In withdrawing packs from cartridge box, seize ring with thumb and second finger, first finger on plug head, and turn pack slightly to free it in pack hole.

In charging cylinder, do not turn pack or in any way attempt to guide cartridges.

Same, except:

First motion. Drop piece into left hand with the muzzle forty-five degrees *above* horizontal, and in ejecting press rod head home smartly; then drop muzzle to loading position in "Cartridges, load."

Second motion. With thumb and second finger of right hand take a pack from the box, first finger on plug head. Place plug point in latch seat in ejector, lift first finger from plug head, and press on pack ring with thumb and second finger. Then proceed as in "Cartridges, load."

4. "Return pistol!" (One time and two motions.) "Return!" Drop the muzzle and enter it in the holster.

"Pistol!" Thrust it home, and fasten flap.

REMARKS ON THE REVOLVER MANUAL.

The above manual is for right-hand work, but when charging the enemy's boarders, or when boarding, where the hands do not have to be used in climbing, the revolver will be used in the left hand, the cutlass in the right, as follows:—

"Sword and pistol, draw, charge!" At the preparatory order, "Sword and pistol," carry the right hand to cutlass hilt, and the left hand behind the back to revolver grip, and loosen the arms in scabbard and holster.

At the order, "Draw," draw both cutlass and revolver, bringing the first to the position *support*, diagonally across the body, edge to the front, point opposite and near the left shoulder, and the second to the position "Left hand, aim," arm nearly extended to the front, elbow slightly bent, finger on the trigger. At the order, "Charge!" empty the chambers, on a run, and close with the cutlass. Firing with the left hand to be always double snap, although the double pull of eleven pounds and the awkwardness due to using the left hand, will always make such firing wild, it will be found that, with very little practice, men can deliver the six shots, when closing on a run from forty yards to five yards, and get them home between the neck and knees as regards elevation, and with a dispersion laterally of ten feet.

The empty revolver may be used to parry a cut at the head, leaving the cutlass free to deliver a thrust *in tierce*.

In case of a check, or other cause, giving time to reload, the revolvers are reloaded at the order "Pack, load."

At this order, drop the cutlass hilt, allowing the weapon to hang by the lanyard from the right wrist, change the revolver grip to the right hand, and proceed as per manual. When loaded, change revolver to left hand and resume position, "Sword and pistol, draw."

When, for lack of more effective arms, it becomes necessary to use revolvers at long range, a considerable effect up to 120 yards can be gotten from them by using volleys delivered over the left arm as a rest, as follows:—

"Left arm rest, single aim, fire!" At the order, "Left arm rest,' grasp the right forearm near the elbow with the left hand, and make a half face to the right.

Enter plug tit in latch seat and press straight down on ring, relieving pressure of first finger on plug head at same time.

To Charge Packs.— Place six cartridges in holes in pack charging block. Enclose cartridge heads with pack ring. Enter plug between cartridges through hole in ring. Press plug gently to push cartridge heads to seats, and then push plug home with ball of palm of hand.

"Single!" Full cock the piece.

"Aim!" Drop the right hand into hollow of left arm, with joint between cylinder and barrel outside of elbow, raise the left arm, and aim with full sights.

"Fire!" Pull the trigger, steadying the piece with grasp of left hand on right forearm.

The revolver is sighted, full, for twenty yards, but the "flip" counterbalances the curve of trajectory up to 120 yards. Inside of twenty-five yards the shooting will be slightly high.

The double pull, being heavy and "creepy," is not well adapted to aimed fire.

The single pull of from six to eight pounds may be lightened by slacking the strain screw, when nice target work is wanted. With the strain screw slackened off, the mainspring will still have sufficient resilience for firing on the single, but it will not be sure on the double pull.

DISMOUNTING AND ASSEMBLING COLT DOUBLE-ACTION NAVY REVOLVER.

Turn stock screw partly out, and press on screw to loosen half stocks and remove these last.

Turn out cap screws, tap guard and frame with screw-driver handle to loosen cap, and remove cap.

Slip out hand and spring.

Pass wrench handle between frame and mainspring, with neck of handle at curve of frame under swell, width of handle forward of curve, and by twisting wrench cam spring down till stirrup can be thrown off. Slip mainspring out.

Draw hammer off pin.

With widest part of wrench handle applied at curve of frame under swell, cam down rebound spring and slip rebound lever off pin. Draw trigger off pin. With large drift, drive out rebound spring pin and remove spring.

Turn out crane-lock screw, and remove lock.

Grasp crane at flat and draw it forward, thus compressing ejector spring. Turn cylinder till any flute indexes with crane joint on frame, and remove cylinder and crane.

Press latch fully back, and, with small drift applied through hole in latch, push out latch-spring pin. Remove latch and spring.

With large drift, drive out strut pin, and remove strut and spring from hammer. With small drift, push out stirrup pin.

With large drift, turn off ejector rod head, and with ejector wrench, turn off ejector — *left-hand thread* — and remove cylinder.

With crane-nut wrench, turn out crane nuts — *left-hand thread* — and remove ejector rod and spring.

The barrel will not be unscrewed from the frame, nor pins driven out, other than those before mentioned, unless to replace broken hammer pin.

To assemble. — Proceed in the reverse order, except,

1. After screwing on the ejector, until the guide pin indexes with its hole, with the set, lightly set out the end of the rod.

When replacing a broken ejector rod, screw the ejector down to the shoulder, then back off till the guide pin indexes properly, and use the set as before.

2. *To assemble the latch in the frame.*— Seat the latch with its spring in place. Then, with the large end of the large drift, compress the spring, pushing on the small end with the thumb of the left hand, and holding the latch in place with the forefinger of the same hand applied to the cylindrical part.

With the right hand enter the latch-spring pin in the hole from the cap side of the frame, and push it home, working it over the last coil of the spring, and at the same time releasing, gradually, the pressure on the drift.

3. See that the guide pin in cap is to rear of handspring before pushing cap forward to place.

4. In assembling, place crane-lock screw head in slot in lock and enter both together; then turn screw home. In this way the grasp of the lock on crane is insured. Be sure the crane lock enters its slot, which will be known by heads of lock and screw coming nearly flush with frame when set up.

Ejector rod is of best Stubbs steel, untempered. It will spring some and may be set by abuse. In case rod is bent, place pistol on bench, right side down, and with cylinder turned out. Hold crane back with left hand and revolve cylinder with right, noting the throw out of rod head. Turn rod head till the throw is up, and tap it with screw-driver handle. Revolve again to test alignment. So proceed till rod is straightened.

The screw-driver handle has been designed for use as a mallet in all work about the revolver. Hold it by the neck and deliver blow with butt end. Never hold by the blade and drive with side of handle.

REMARKS ON MANIPULATION OF COLT DOUBLE-ACTION NAVY REVOLVER.

When the hammer is rebounded, it is positively locked back, and cannot fall till the trigger be pulled or the mechanism broken, and therefore it is always safe as long as the finger is kept off the trigger.

If the trigger be tried when the cylinder is turned out, or if under the same conditions the attempt to full cock the piece be made, the resistance of the safety nib of the trigger upon the crane end will be felt; and if now either trigger or hammer be forced, the nib will cut into the crane end and raise a burr which will disable the arm, or at least make the double pull heavy. The pistol cannot be fired until the cylinder is latched home, because only then can the primer of the cartridge come into the plane of the hammer stroke; but by forcing the safety nib to shear into the slot in the crane end, the hammer may be made to rise and fall. A heavy double pull, then, indicates that the cylinder is not latched.

Latching the cylinder must be insisted upon, and the men instructed to close it smartly with the thumb of the left hand, and to test the latching by pressing back with the fingers of the same hand, with an upward rolling push, which rotates the cylinder and gives assurance that it is clear and ready for work.

If the cylinder be not latched, the pressure of the fingers will turn it out, and, if it had been closed smartly, the non-latching will indicate dirt or other obstruction between the flat of the crane and the frame, which must be brushed out by the finger.

The rotating of the cylinder is allowed by this mechanism, which has no cylinder bolt, since the hand positively brings the chambers to the

firing position in succession, and entirely overcomes the "overthrow" so objectionable in the single-acting revolvers.

The good features of a freely rotating, no-bolt cylinder are partly counterbalanced by this minor defect; the cylinder must be fully loaded before the weapon is returned to the holster to insure a fire at the first pull of the trigger, since one of the unloaded chambers might be first brought to the firing position by the action of the mechanism.

When the arms have been loaded for a long time, and carried in heavy rains, or in excessively dusty places, the latches should be sprung back a few times to test their condition, and the latching in and free rotation of the cylinder tested, as above.

When first using the double pull, it is the tendency of a person accustomed to single-action pistols to release too slowly and to pull again before the trigger has had its full forward movement; and when attempting to fire very quickly on the double pull, the novice will almost invariably make his pull so short — though not quick — that the hammer will not always be lifted.

Men should be thoroughly practiced at the double pulls with the arm in either hand, and should be made to understand that if from any cause the double action fail, there is still the single to fall back on.

The single pull is established at six to eight pounds, and the double at nine to eleven pounds.

The sighting is for twenty yards, with front sight filling to the top of the notch. The same sighting holds good up to eighty yards, above which a little increase of elevation will be needed up to 120 yards. The revolvers will shoot slightly high inside of twenty yards.

As with all revolvers, after long continued firing, the fouling should be wiped from the face of the cylinder to prevent clogging of the joint between cylinder and barrel.

In handling this arm, one axiom should be borne in mind — no revolver has yet been made which does not require a little intelligence in manipulating, if it is to be depended upon; and on drill, strict obedience to these four rules should be insisted upon: —

1. Never touch the hammer or trigger when the arm is not pointed up or at the object.
2. Never touch the hammer or trigger when the cylinder is unlatched.
3. After closing the cylinder, always test the latching and rotating.
4. Never force the hammer or trigger.

HINTS TO ARMORERS ON COLT DOUBLE-ACTION NAVY REVOLVERS.

Use only good sperm oil for lubricating; if other oil be used in cleaning, see that it is carefully wiped off from all parts.

Keep the latches free from rust under the thumb-piece. It will rarely be necessary to dismount the latch to do this. Spring it fully back, clean the spot on the frame normally covered by the thumb-piece, and oil well; then work the latch a few times.

Do not dismount the crane from the cylinder unless very rusty, as unscrewing the ejector should be avoided. With the crane and cylinder dismounted from the frame, press the crane arm out of the cylinder by compressing the ejector spring, clean and oil. Proceed in like manner with ejector rod. If, after this, there is evidence of internal rust or dirt, it is time to turn off ejector and dismount entirely.

In dismounting crane and cylinder from frame, slack, but do not turn out crane-lock screw.

If double pull is heavy, examine end of crane for burrs thrown up by safety nib of trigger, when the arm has been abused.

If burrs are found, remove them with smooth file. To test free working of trigger, hand and rebound lever, pull off at double pull; then let the trigger move forward slowly and pull back again before heel of trigger engages hammer strut. If a rub is felt, remove cap and examine the three parts mentioned. To test free working of hammer and strength of mainspring, hold trigger back and work hammer with thumb.

Keep rebound lever clean and free from rust, especially where end of rebound spring bears. The strain screws are set to just bear on mainsprings; if these last set by continual snapping on drill, give the strain screws a turn. It would be well to slack off strain screws clear of mainsprings — one turn back will do it — when the arms are to be snapped much on drill.

In assembling the latch in the frame, a little practice will be necessary in order to enter the pin readily. Follow the directions closely. Use the handle of the screw driver — butt end — as a mallet in loosening cap, etc., and, in general, wherever it can be used as such. In the field, the wrench handle can be used as a hammer for the drifts.

In using the wrench, as such, remember that the threads of the ejector and crane nut are both left handed, and that they are light, and can be readily stripped.

REVOLVER RULES IN THE MASSACHUSETTS MILITIA.

The following rules governing revolver practice in the Massachusetts Volunteer Militia were issued by Colonel George F. Hall, inspector general of rifle practice in 1894.

REVOLVER QUALIFICATIONS.

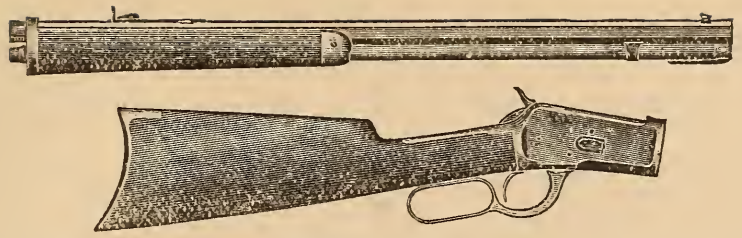
Officers and non-commissioned staff officers of organizations armed with the revolver, and any other officers and non-commissioned staff officers owning the regulation army revolver, will qualify as follows: —

First Class: two scores of twenty-eight out of a possible thirty, at fifty yards.

Second Class: two scores of twenty-five out of a possible thirty, at fifty yards.

The target shall be that used for rifle shooting at 200 yards. Each score must be shot in one minute, or less, and must be approved by an officer.

Position; arm extended, elbow free from body. Ammunition, any; minimum trigger pull, four pounds. Competitors furnish their own ammunition.



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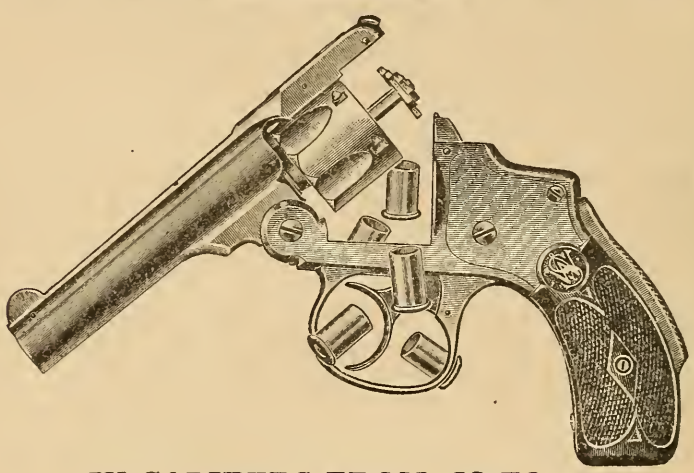

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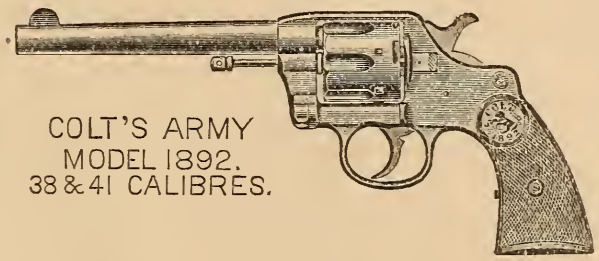

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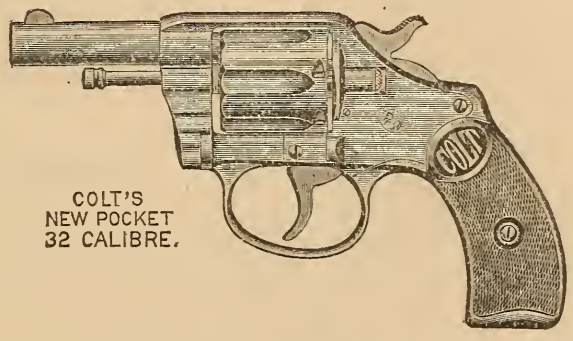

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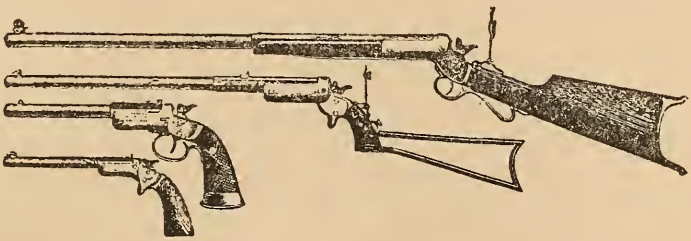

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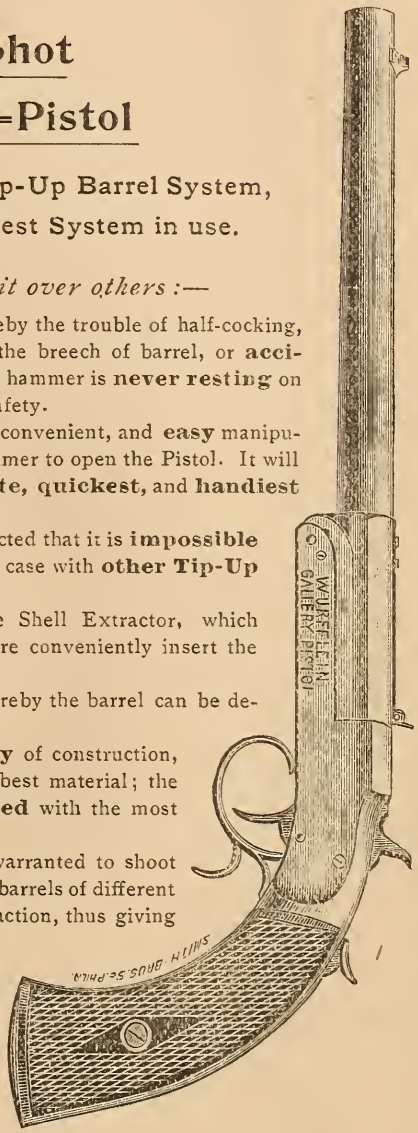

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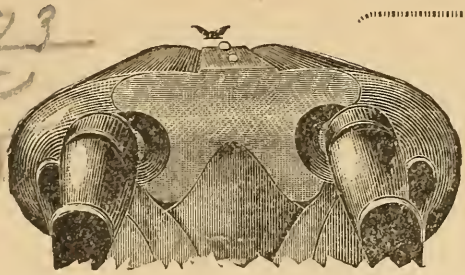
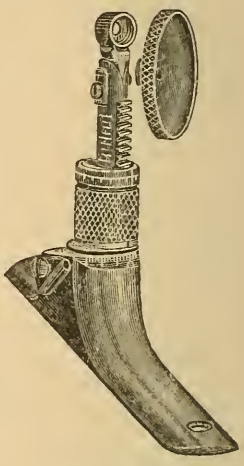
LYMAN SIGHTS.



Lyman's Patent Ivory Shot Gun Sights.

A New System of Sighting Shot Guns.

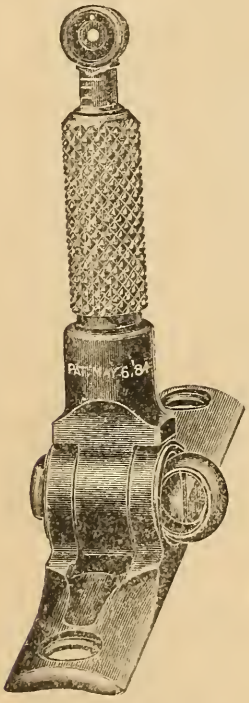


REDUCED CUT.

Lyman's Patent Wind-gauge Sight.

PRICE, $5.00.

The Windage mechanism of this sight is very simple. Used without the large disk, the principle of this sight is the same as the Combination sight.



Lyman's Patent Combination Rear Sight.

Price of this sight, $3.00.

These sights more than double the value of a rifle, either for hunting or target shooting, for instantaneous aim can be taken with great accuracy.

LYMAN'S PATENT

Ivory Bead Front Sight.

Price, $1.00.

These sights can be seen distinctly against any object in the woods or in the bright sunlight.

Ivory Hunting Front Sight.

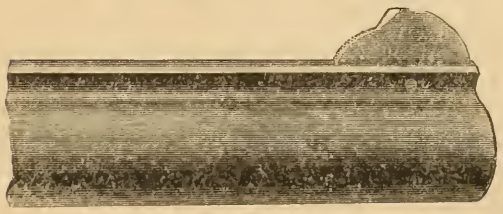
Price, 50 cts.

Lyman's Patent Ivory Combination Front Sight.

This is an excellent sight for "all around" use.

The cuts show the open ivory and the shaded globe.

PRICE, $1.00.



Lyman's Patent Ivory Revolver Sight.

This is a great improvement over any revolver sight now in use. It is adapted to all revolvers having their sights pinned in the rib above the barrel. **PRICE, 50 CENTS.**

Address, WM. LYMAN, Middlefield, Conn., U. S. A.

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